Oregon Wilderness

Environmental Impact Statement

Volume IV

Includes Appendices for all WSAs beginning with OR-3 and OR-6 (except OR-3-114, See Volume III)
As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.
Oregon Wilderness

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Appendix to the Wilderness Environmental Impact Statement for Oregon

Castle Rock Wilderness Study Area (OR-3-18)

1. Introduction

General Description of Study Area

The Castle Rock Wilderness Study Area (WSA) is located in Malheur County, approximately 26 miles north of the community of Juntura and U.S. Highway 20 (see Map 1).

The WSA contains 6,200 acres of public land including one 640-acre parcel of split-estate land located near the center of the WSA (see Map 2). The WSA is roughly triangular in shape and has three narrow extensions which give it a slightly irregular perimeter. It is bounded by a combination of high standard dirt roads on public land and by private property.

The WSA lies less than 10 miles south of the Malheur National Forest. Portions of the area are steep and support stands of ponderosa pine with Douglas fir, western juniper and mountain mahogany. A wide variety of vegetative communities occur within the WSA and provide habitat for a diverse population of wildlife species. The most notable physical feature of the WSA is Castle Rock. It is the highest landform within 100 miles to the south and east and 20 miles to the north and west. Castle Rock is the neck of an extinct volcano and reaches an elevation of 6,780 feet.

Interrelationships

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Beulah Wildlife Unit which contains 2,952 square miles of land area. The WSA supports approximately 50 Rocky Mountain elk, 100 mule deer and 10 antelope. ODFW manages the Beulah unit to produce 15 bulls per 100 cows of elk, 10 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Sage grouse, currently a Federal candidate for listing under the Endangered Species Act, are present in the WSA. The ODFW management goals for sage grouse are to restore populations and prevent having to list the species as threatened or endangered on State or Federal lists.

Approximately 3,820 acres (69 percent) of the WSA are under BLM’s Castle Rock Wildlife Habitat Management Plan. The plan is designed to maintain or improve Rocky Mountain elk and mule deer habitat around Castle Rock. It precludes any timber removal unless it is beneficial to wildlife habitat.

The proposed action for this WSA conforms with ODFW management goals for big game and sage grouse.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on energy and mineral development,
- impact on mule deer, antelope, sage grouse and nongame wildlife populations and habitat,
- impact on livestock grazing use levels, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.
2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

• all wilderness
• enhanced wilderness
• no wilderness/no action (proposed action)

A partial alternative is not analyzed because there is no opportunity to remove major conflicts associated with mineral exploration and development and still retain an area of sufficient size for management as wilderness.

All Wilderness

Under the all wilderness alternative, all 6,200 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the mineral estate of the 640-acre split-estate parcel would not be acquired.

Energy and Mineral Development Actions

Wilderness designation would close 5,560 acres of public land within the WSA to all forms of mineral entry. A 640-acre parcel of split-estate land would be open to mineral exploration and development.

Exploration and development of energy resources would be prohibited on 5,560 acres, including oil and gas and geothermal resources. Exploration for geothermal resources (which have a moderate potential for occurrence on 3,440 acres in the southern and northwestern portion of the WSA) is postulated to occur on 560 acres of split-estate land. This effort will most likely consist of geologic mapping and geophysical surveys, followed by the drilling of a 4,000-foot-deep temperature gradient hole. The resulting surface disturbance is expected to total about two acres, including 1 mile of new road construction. There are no buildings in the WSA nor population centers near the WSA that would justify geothermal development for space heating. In addition the geothermal resource does not appear to possess a temperature level sufficiently high enough for electrical generation. Therefore, no development is projected.

Due to the lack of direct geologic evidence indicating favorability, absence of confirmed petroleum-bearing formations and a relatively thick volcanic cover, only casual, non-surface disturbing exploration for oil and gas, with no development, is postulated on the 640-acre split-estate parcel.

Exploration and development of mineral resources would be prohibited on 5,560 acres. Exploration and development is not postulated to occur on the 40 existing mining claims located in the northwestern portion of the WSA as they contain no confirmed developable mineral resources.

Exploration for gold, silver and mercury (which have a high potential of occurrence over the entire WSA) and diatomite (which has a moderate potential of occurrence over the entire WSA) is postulated for the 640-acre split-estate parcel. This effort will most likely consist of surface examination and sampling followed by core drilling. These tests may involve up to five core holes and may disturb five acres, including 3 miles of new road construction. The discovery of economic mineral deposits on the split-estate lands is not anticipated; consequently, no development is projected.

Total surface disturbance anticipated from all energy/mineral exploration activities would be approximately seven acres, including 4 miles of new road construction.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,303 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management on 3 miles of ways would be precluded. Management of livestock and maintenance of 8 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain four developed springs and two reservoirs.

Recreation Management Actions

The entire 6,200 acres of public land would be closed to motorized use. Presently, vehicle use is limited by vehicle designation to the 3 miles of existing ways. Current recreational use is estimated to be approximately 1,000 visitor days per year.

Enhanced Wilderness

Under the enhanced wilderness alternative, 5,975 acres of public land would be recommended suitable as wilderness (see Map 3). An attempt would be made to acquire the mineral estate of the 640-acre split-estate parcel, if owners are willing. This alternative would also recommend the two narrow southern extensions of the WSA, containing 225 acres, as nonsuitable for wilderness designation. One of these extensions contains the existing powerline. The boundaries between the suitable and nonsuitable portions would follow legal subdivisions (section lines).

Energy and Mineral Development Actions

Wilderness designation would close 5,335 acres within the WSA to all forms of mineral entry. An additional 640 acres would be closed if acquisition of 640 acres of mineral estate is successful, for a total of 5,975 acres. The 225 acres of public land recommended nonsuitable for wilderness designation would be open to mineral entry.

Exploration and development of energy resources would be prohibited on 5,975 acres, including geothermal resources (which have a moderate potential for occurrence on 3,775 acres in the southern and northwestern portions of the WSA) and oil and gas. Because of the small acreage involved in the nonsuitable southern portion of the WSA (225 acres) and the expense involved in geothermal exploration and development, only casual non-surface exploration with no development is projected for this energy resource. Due to the lack of direct geologic evidence indicating favorability, absence of confirmed petroleum bearing formations, a relatively thick volcanic cover, and no existing mineral leases, only casual non-surface disturbing exploration with no development is also postulated for oil and gas on the nonsuitable portion of the WSA.

The area recommended suitable contains 40 mining claims. These claims total approximately 825 acres and are located in the northwestern portion of the WSA.

Exploration and development of mineral resources would be prohibited on 5,975 acres. Exploration or development is not projected to occur on the 40 existing mining claims located in the northwestern portion of the WSA, as they contain no confirmed developable mineral resources.

Exploration for gold, silver and mercury (which have a high potential for occurrence) and diatomite (which has a moderate potential for occurrence) is postulated for the 225 acres of nonsuitable lands in the southern portion of the WSA. This effort will most likely consist of surface examination and sampling, followed by the drilling of two core holes (one on each parcel). The resulting surface disturbance is expected to total one acre, including 0.5 miles of new road construction. The discovery of an economic mineral deposit on these nonsuitable lands is not anticipated; therefore, no development is projected.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM's wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Grazing Management Actions

Livestock grazing use would continue at the current level of 1,303 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for day-to-day livestock management on 3 miles of ways would be precluded. Management of livestock and maintenance of 8 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain two reservoirs and four developed springs.

Recreation Management Actions

The entire suitable area, totaling 5,975 acres of public land, would be closed to motorized vehicle use, including the 3 miles of three existing 1-mile ways. Presently, vehicle use in the entire WSA is limited by vehicle designation to these 3 miles of ways. Current recreational use is estimated to be approximately 1,000 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 6,200 acres of public land in the WSA would be open to mineral exploration and development. Exploration is postulated to occur throughout 4,000 acres in the southern and northwestern portions of the WSA for geothermal resources, which have a moderate potential for occurrence. This effort would most likely consist of geologic mapping and geophysical surveys followed by the drilling of seven 4,000-foot-deep temperature gradient holes. The resulting surface disturbance is expected to total about nine acres, including 5 miles of new road construction. There are neither buildings nor population centers near the WSA that would justify geothermal development for space heating, and the geothermal resource does not appear to possess a temperature level sufficiently high enough for electric generation. Therefore, no development is projected.

As the WSA has no direct geologic evidence indicating favorability, no confirmed petroleum-bearing formations, a relatively thick volcanic cover, and no existing oil and gas leases, only casual, non-surface disturbing exploration for oil and gas without development is postulated.

Exploration for gold, silver and mercury, which have a high potential for occurrence, is postulated to occur throughout the WSA. This effort most likely will consist of surface examination and sampling, followed by core drilling. These tests may involve up to 50 core holes and may disturb 33 acres, including 17 miles of new road construction. It is postulated that an economic gold/silver deposit will be discovered, probably in the northwest corner of the WSA, and will be developed. The operation would involve an estimated 450 acres of surface disturbance for an open-pit mine and 2 miles of new permanent haul road.

Exploration for diatomite, which has a moderate potential for occurrence, is postulated to occur throughout the western half of the WSA, especially near known occurrences along its western boundary. This effort would most likely consist of surface examination and sampling, followed by the drilling of 10 core holes, resulting in an estimated six acres of surface disturbance, including 3 miles of new road construction. The discovery of a large volume economic deposit is not expected and development is not projected.

Overall, energy and mineral exploration activities in the WSA are projected to result in the development of one open-pit mine and construction of 27 miles of roads (2 miles of which would be permanent), with a total estimated surface disturbance of 498 acres.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock would be managed at a use level of approximately 1,233 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management and maintenance of the 8 miles of fence, 2 reservoirs and 4 developed springs would continue on 3 miles of ways. The ways are used 5 to 10 times per year to check livestock, spread salt and to maintain facilities.

Recreation Management Actions

Vehicle use would be limited to 3 miles on three existing ways plus 2 miles of new permanent mining roads. Current recreational use is estimated to be approximately 1,000 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the WSA, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA is in a substantially natural condition. Thirteen interior unnatural features visually influence approximately 13 percent of the WSA. These features consist of two reservoirs, four developed springs, one corral, an old remnant dam, 3 miles of three ways, 8 miles of fence, and a powerline approximately 0.5 mile in length. These interior developments are generally well dispersed within the WSA.

Unnatural features outside the WSA that affect the naturalness of the area include boundary roads and cultivated farm land. The steep, open, western slope of Castle Rock ridge is the area most influenced by developments on the adjoining private property.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Due to the steep terrain and the attraction of Castle Rock, most visitors to the area would travel in a narrow corridor on the ridgeline from the north boundary of the WSA to Castle Rock. Because of this restrictive travel pattern, the area’s relatively small size and the open western slope, the WSA does not offer an outstanding opportunity for solitude. Vegetative screening, found mainly on the eastern slope, and the topographic screening of the ridge provide some seclusion but do not compensate for the small size and confined use pattern.

Outstanding opportunities for day hiking, photography, bird watching and sightseeing exist within the WSA. The area also offers opportunities for hunting, backpacking, camping, horseback riding, rock climbing and winter sports.

Special Features

Castle Rock is one of the most prominent physical features in the region and is the focal point of interest in the WSA. It is the neck of an extinct volcano believed to have erupted roughly 15 million years ago. The feature can be viewed from 50 miles or more away and is a striking landmark with highly scenic qualities. The area apparently serves as a vision quest site for the North Paiute Indians, but this has not been verified by the BLM. Castle Rock also served as a regional landmark during pioneer times.

The WSA contains an unusually large number of different plant communities compared to most areas in Malheur County. Six distinct communities occur within the WSA and are described in the vegetation section. The WSA supports about 50 Rocky Mountain elk. Sage grouse, a Federal candidate for listing under the Endangered Species Act, inhabit the WSA.
Diversity of the National Wilderness Preservation System (NWPS)

Based on the Bailey-Kuchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Ochoco, Blue, Wallowa Mountains section of the Oregon Natural Heritage Plan, the WSA contains the following communities: western juniper/bluebunch wheatgrass; ponderosa pine/bunchgrass in the Blue Mountains with inclusions of Idaho fescue/bluebunch wheatgrass; bluebunch wheatgrass/Idaho fescue/Sandberg's bluegrass complex; mountain mahogany/bunchgrass; and big sagebrush/bluebunch wheatgrass inside the forest zone.

There are two standard metropolitan statistical areas with populations over 100,000 within five hour's driving time of the WSA: Boise, Idaho, and Kennewick/Richland/Pasco, Washington.

Energy and Mineral Development

Energy and mineral resources of the Castle Rock WSA were evaluated from available geologic data by TERRADATA, a consulting firm under BLM contract. Technical details of the evaluation are incorporated in a TERRADATA report titled "Assessment of Geology, Energy and Mineral Resources of Castle Rock Geologic Resource Area (GRA)."

BLM geologists revised the mineral potential of the WSA during June 1987. Newly-acquired mineral resource information, consisting of geochemical data gathered from a recent mineral exploration effort conducted by Manville Sales Corporation and a 1976 Master's Thesis by John David Wood titled "Geology of the Castle Rock Area, Grant, Harney, and Malheur Counties, Oregon" were used to reevaluate mineral potential in the WSA.

The WSA is within the Castle Rock geologic resource area which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the energy and mineral classification for the WSA. Map 4 shows where energy and mineral resources have moderate and high potential for occurrence in the WSA.

Geologic material found in the WSA consists mainly of Tertiary basalt flows, ash-flow tuffs, minor tuffaceous lake deposits, and an intrusive dike (Castle Rock). An area of hydrothermal alteration (i.e., an area where the pre-existing minerals in the rocks have been recrystallized, melted or replaced by other minerals through chemical reactions with hot water solutions), has been mapped in the western half of the WSA where erosion along streams has removed the overlying basalts. The alteration appears to have been caused by a geothermal system which is no longer active at this level (Wood 1976).

No pre-Tertiary rocks are known to be exposed in the WSA. However, Paleozoic and Mesozoic sedimentary and volcanic rocks crop out about 2 miles north of the WSA. Some of these rocks are of marine origin and are thought to underlie the Tertiary cover in the WSA.

Energy Resources

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of petroleum-bearing marine rocks at depth. However, there has been no deep drilling in the vicinity which has penetrated the Tertiary volcanic cover.

Based on direct geologic evidence (e.g., the presence of three hot springs located 3 miles south of the WSA and evidence of hydrothermal alteration in the WSA) approximately 4,000 acres in the southern and northwestern portions of the WSA are considered to have a moderate potential for the occurrence of geothermal resources at depth, as shown on Map 4.

As of October 16, 1987 there were no oil and gas or geothermal leases in the WSA.

Mineral Resources

No confirmed mineral deposits have been found in the WSA. However, anomalous values for gold, silver, mercury and arsenic have been identified in the hydrothermal alteration zone located in the western half of the WSA. Therefore, based on this direct geologic evidence and the fact that the same rock types are found throughout the WSA, the entire WSA is considered to have a high potential for the occurrence of gold, silver and mercury.
The entire WSA is considered to have a moderate potential for the occurrence of diatomite based on direct geologic evidence (e.g., the known occurrence of this mineral in thin beds along the western edge of the WSA and the presence of similar rock types throughout the WSA).

As of October 16, 1987, the WSA contained 40 lode mining claims, totaling some 825 acres, located in the northwestern portion of the WSA.

Vegetation

A variety of vegetation communities occurs in the WSA. These communities are typical of higher elevation sagebrush-steppe ecosystems bordering forest zones. The ecological status is primarily early seral in the southern and lower elevation western portions of the WSA. In the rest of the WSA, status is middle to late seral, with pristine pockets occurring on steeper slopes and at higher elevations. The area supports numerous herbaceous perennial species, including phlox, collomia, daisy fleabane, lupine, aster and scarlet gilia. Shrub species are characteristic of higher elevations, both snowberry and Oregon grape occur in the WSA. Patches of bitterbrush may be found in the drier areas.

The two major vegetation communities which occur in the area are bluebunch wheatgrass/idaho fescue and mountain big sagebrush/idaho fescue/bluebunch wheatgrass. Other plant communities include ponderosa pine/ponderosa pine/bunchgrass, mountain mahogany/bunchgrass, and ponderosa pine/Douglas fir. There are approximately 230 acres of ponderosa pine. Scattered stands of western juniper as well as pockets of quaking aspen also occur in the area.

There are no known threatened or endangered plant species within the WSA.

Wildlife

The Castle Rock WSA has high quality big game summer range. Cover, water and forage are all available in sufficient quantities to be especially good for deer and elk. Forest canopy cover and high quality forage are key habitat features. Antelope may occasionally use the area, but it is not considered preferred antelope range.

A diverse community of upland game birds use the area, including chukar partridge, California quail and sage grouse. Sage grouse are a candidate for Federal listing under the Endangered Species Act.

Two reservoirs near Horse Flat support emergent vegetation and wetland meadow habitat for waterfowl, primarily mallards.

Watershed

There are no perennial streams within the WSA.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 8 miles of fence, two reservoirs and four developed springs.

Livestock operators use motor vehicles on 3 miles of existing ways approximately 5 to 10 times per year for fence, spring and reservoir inspection and maintenance, to check on livestock and to spread salt. Due to topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

The primary recreation activity within the WSA is hunting for deer, elk and upland game birds. Vegetation and topography somewhat limit shooting opportunities once game is flushed. Vehicle use, most of which is associated with hunting, is limited by vehicle designation to the 3 miles of ways which penetrate the WSA. Consequently, the majority of recreational use in the WSA is non-motorized (i.e., hunting by foot). Day hiking to the summit of Castle Rock is also a popular activity. Recreation use in the WSA amounts to approximately 1,000 visitor days per year.

Local Personal Income

Livestock use at the current level of 1,303 AUMs and recreation use totaling 1,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $15,600 for livestock grazing and $12,000 related to recreation use of the WSA, for an overall total of $27,600. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.
4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 6,200 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All 6,200 acres of the WSA would be designated wilderness, and wilderness values within the area would be protected by legislative mandate. Special features, including the Rocky Mountain elk, sage grouse, and Castle Rock would be protected.

Naturalness

The naturalness of Castle Rock and numerous drainages and canyons associated with this prominent feature would be partially protected and slightly enhanced by wilderness designation. Closure of 3 miles of ways, which visually influence approximately 140 acres (slightly over two percent) of the WSA, would allow the ways to revegetate. Within three to five years the parallel vehicle tracks of the ways would be substantially unnoticeable. General maintenance of the four developed springs and 8 miles of livestock fence would be accomplished by nonmotorized methods. Periodic (once every 5-10 years) use of the closed ways or cross-country travel by heavy equipment for maintenance of the four developed springs and two reservoirs would cause nominal disturbance of the naturalness of the area. Maintenance of the 0.5 mile powerline could be accomplished predominantly from the adjacent boundary road.

Three miles of temporary road development with five acres of surface disturbance associated with mineral exploration activities on the 640 acre split-estate parcel would detract from the area’s naturalness. Rehabilitation measures applied to the roads and associated drill pads would still result in residual visual impacts expected to last between 5 to 15+ years. These activities would occur in the higher and central portion of the WSA.

Solitude

Eliminating motorized vehicle use on the 3 miles of ways would slightly increase opportunities for solitude, particularly in the central portion of the WSA. Vehicle and machinery use during the temporary mineral exploration activities on the 640-acre split-estate parcel located in the higher central portion of the WSA would impact what opportunities for solitude exist in the area. Otherwise, vehicles would be limited to the boundary roads. Periodic maintenance activities at the two reservoirs and four developed springs by heavy equipment could cause local short term disturbance to solitude opportunities for wilderness visitors.

Primitive and Unconfined Recreation

Closure of the 3 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation opportunities such as hiking, cross-country skiing and horseback riding. This action would enhance the quality of hunting, bird watching, photography and sightseeing experiences once the ways were rehabilitated. A more natural, primitive, wild setting would be provided. Maintenance activities at the two reservoirs and four developed springs, performed approximately once every 5 to 10 years by heavy equipment, would cause local short term disturbance to primitive and unconfined recreation experiences due to the visual and/or audible distractions associated with these types of motorized activities.

Road and drill pad construction and associated mineral exploration activities of the 640-acre split-estate parcel would have a longer lasting impact on primitive and unconfined recreation activities until such activities cease and surface disturbances are adequately rehabilitated.

Special Features

Eliminating motorized vehicle use on the 3 miles of ways would eliminate soil compaction and rutting of wetland meadows areas (particularly at Horse Flat reservoir) and minor seasonal disturbance of sage grouse and Rocky Mountain elk.
Conclusion: Wilderness designation of the entire 6,200 acres within the Castle Rock WSA would protect existing wilderness values with some minor enhancement of those values.

Impacts on Energy and Mineral Development

Wilderness designation would close 5,560 acres of public land within the WSA to mineral entry. The 640-acre split-estate parcel would remain open to mineral exploration.

Energy Development

Exploration for energy resources would be precluded on 5,560 acres. Due to the lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual, non-surface disturbing exploration without development is projected for oil and gas on 3,440 acres in the southern and northwestern portions of the WSA. As a consequence of wilderness designation, the projected drilling of six geothermal gradient exploratory wells would be foregone. Development has not been projected in the WSA, due to the lack of nearby uses for direct heat and insufficient geothermal temperatures for electrical generation. Exploration could occur in the 640-acre split-estate parcel. The drilling of one geothermal gradient hole is projected, but no development.

Conclusion: There would be no impact on energy development.

Mineral Development

Projected exploration for gold, silver and mercury would be precluded on 5,560 acres. Development of 40 existing mining claims located in the northwestern portion of the WSA is not projected due to the lack of a known developable mineral resource. Projected exploratory drilling of 55 core holes and production from one projected open-pit gold/silver mine in the WSA would be precluded.

Exploration for gold, silver, mercury and diatomite involving the drilling of five core holes is expected to occur on the 640-acre split-estate parcel. The discovery of an economic mineral deposit is not anticipated, and no development is projected.

Conclusion: Wilderness designation would result in foregone production from one projected open-pit gold/silver mine.

Impacts on Vegetation

Utilization of key forage species would remain at the current levels of approximately 50 percent of available forage removed per year. Continued livestock grazing would maintain the present ecological status of the various vegetative communities throughout the WSA.

Closure of 3 miles of ways would result in their revegetation within three to five years. Five acres of vegetation would be removed due to mineral exploration activities on the 640-acre split-estate parcel, without complete recovery of vegetation for 5 to 15+ years. Little or no change would occur to vegetation on the rest of the area.

Conclusion: Little or no change would occur to vegetation.

Impacts on Wildlife

Adequate wildlife forage and cover for existing populations would be ensured in the preparation of livestock allotment management plans and guidance provided in the Castle Rock Wildlife Habitat Management Plan. As a result, habitat and population levels for big game (mule deer, elk, and antelope), sage grouse and nongame species would be maintained in the WSA.

Closure of 6,200 acres and 3 miles of ways to vehicle use would improve the degree of freedom from human interaction for all species present, except during the short-term mineral exploration activities on the 640-acre split-estate parcel of the WSA.

Conclusion: Wildlife habitat and populations would be maintained on 6,200 acres designated wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,303 AUMs within the portions of the two allotments in the WSA. Vehicle use for livestock management and facility inspection/maintenance on 3 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and a slight additional expense to livestock operators. Much of the area is presently inaccessible by motorized vehicle and livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of 2 reservoirs and four developed springs. This periodic, infrequent use would involve the use of 2 miles of closed ways and 0.5 mile of cross-country travel.
Conclusion: Livestock use would remain at the current use level of 1,303 AUMs. Vehicle use of 3 miles of ways would be precluded with some inconvenience and a slight increase in cost to livestock operators.

Impacts on Recreation Use

Closure of the 3 miles of ways would restrict motorized access into portions of the WSA, thus reducing vehicle-oriented recreation in the area. As the public becomes aware of the area’s wilderness qualities and primitive recreation opportunities, particularly hiking and photography associated with Castle Rock, increased visitation from wilderness users would more than offset the minor decreases from vehicle-oriented recreation along the ways. The area’s recreation use level would slightly increase from 1,000 to approximately 1,200 visitor use days per year. Hunting could continue on foot and horseback. Vehicular access routes constructed for mineral exploration activities on the 640-acre split-estate parcel would be rehabilitated and thus not available for motorized vehicle use by recreation users within the area.

Conclusion: The area’s recreation use level would slightly increase from 1,000 to approximately 1,200 visitor use days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,303 AUMs. Overall recreation use would increase by 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $2,400 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $2,000.

Enhanced Wilderness

Recommended suitable for wilderness: 5,975 acres
Recommended nonsuitable for wilderness: 225 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would add 5,975 acres to the National Wilderness Preservation System. This alternative assumes acquisition of the mineral estate of the 640-acre split-estate parcel. In addition, the exclusion of 225 acres within two narrow southern fingers of the area would enhance the manageability of the designated wilderness. Three miles on three ways would be closed. Wilderness values on 5,975 acres would receive legislative protection. Special features including the Rocky Mountain elk, sage grouse and high visual values associated with Castle Rock would receive wilderness protection under this alternative.

Naturalness

The effects on naturalness would be similar to those if the natural wilderness alternative except that this enhanced alternative also includes the acquisition of mineral estate on the 640-acre split-estate parcel. The acquisition of mineral estate would preclude projected energy and mineral exploration, thus preserving the naturalness of the area by avoiding surface disturbance from these exploration activities.

Closing the 3 miles of ways would allow revegetation and eliminate their unnatural visual influence on approximately 140 acres (slightly over two percent) of the WSA. The southern boundary adjustment of 225 acres would remove the existing powerline from the WSA by approximately 0.5 mile. Projected mineral exploration within this nonsuitable 225-acre area would further degrade its naturalness values.

Solitude

The effects on solitude would be similar to those if the all wilderness alternative except for the additional preservation of existing opportunities for solitude through acquisition of the 640-acre mineral estate and elimination of projected exploration activities on this split-estate parcel.

As under the all wilderness alternative, closing the 3 miles of ways would increase the size of the area where wilderness visitors’ solitude would not be disturbed by vehicle use, particularly in the central portion of the WSA. Periodic maintenance activities at the two reservoirs and four developed springs by heavy equipment would cause local, short-term disturbance to solitude once every 5 to 10 years. The two narrow “fingers” of 225 acres recommended nonsuitable, which presently have limited solitude opportunities due to activities occurring on adjacent
private land would be further adversely impacted by visual and audible disruptions associated with the projected mineral exploration activities in that area.

**Primitive and Unconfined Recreation**

The same increased opportunities for primitive and unconfined recreation resulting from closure of the three ways, identified under the all wilderness alternative, would occur under this alternative. In addition, the acquisition of the mineral estate of the 640-acre split-estate parcel would preclude energy and mineral exploration and development, thus preserving a natural setting for primitive recreational pursuits.

Projected mineral exploration on the 225 acre nonsuitable area would result in short-term disturbance to primitive and unconfined recreation opportunities.

**Special Features**

The impacts to special features would be the same as the all wilderness alternative with the exception of the acquisition of the mineral estate of the 640-acre split-estate parcel. Preclusion of surface disturbance associated with energy and mineral exploration activities would prevent seasonal disturbance to sage grouse and Rocky Mountain elk, and long-term adverse impacts to the high scenic qualities of the major ridgeline south of Castle Rock.

The closure of 3 miles of ways would eliminate soil compaction and rutting of wetland meadow areas (particularly at Horse Flat reservoir) and minor seasonal disturbance of sage grouse and elk, the same as under the all wilderness alternative.

**Conclusion:** Wilderness designation of 5,975 acres would fully protect and enhance existing wilderness values. The limited wilderness values on the 225-acre nonsuitable area would be further degraded by projected mineral exploration, with further declines from other potential uses over the long term.

**Impact on Energy and Mineral Development**

Wilderness designation would close 5,975 acres within the WSA to mineral entry, assuming acquisition of the mineral estate of the 640-acre split-estate parcel. A total of 225 acres of public land recommended nonsuitable for wilderness would be open to mineral entry.

**Energy Development**

Assuming acquisition of the non-Federal mineral estate, projected exploration with seven geothermal gradient drill holes for geothermal resources on 3,775 acres in the southern and northwestern portions of the WSA would be precluded. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, no development has been projected for energy resources, in both the suitable and nonsuitable areas.

**Conclusion:** There would be no impact on energy development.

**Mineral Development**

Mineral exploration for gold, silver, mercury and diatomite would be precluded on 5,975 acres. No mineral exploration and development of the 40 existing mining claims within the suitable area is projected due to the lack of a known developable mineral resource. Projected exploratory drilling of 58 core holes and production from a projected open-pit gold/silver mine would be precluded.

Exploration for gold, silver, mercury and diatomite, involving the drilling of two core holes, is postulated to occur on the 225 acres of nonsuitable land. However, the discovery of an economic mineral deposit is not anticipated and no development is projected.

**Conclusion:** Wilderness designation would result in foregone production from a projected open-pit mine for gold and silver.

**Impacts on Vegetation**

Impacts upon vegetation under the enhanced wilderness alternative would be similar to the all wilderness alternative. The major difference from the all wilderness alternative is the acquisition of the mineral estate on 640 acres of split-estate land. Acquisition would preclude projected exploration on the split-estate parcel and need for access, thus preventing disturbance to vegetation due to such activities.

Two drill sites and 0.5 mile of new access road on the nonsuitable 225 acres would disturb one acre of vegetation. Little or no change would take place to vegetation over the rest of the area.

**Conclusion:** Little or no change would occur to vegetation in the area designated wilderness. Projected mineral exploration on 225 acres of nonsuitable area would disturb one acre of vegetation.
Impacts on Wildlife

Temporary surface disturbances from projected geothermal and mineral exploration activities on split-estate land would be prevented through acquisition of the 640 acres of mineral estate. Adequate forage and cover for elk, mule deer, antelope and sage grouse would be ensured in the preparation of livestock allotment management plans and guidance provided in the Castle Rock Wildlife Habitat Management Plan.

Closures of 3 miles of ways to vehicle use would improve the degree of freedom from human interaction for all wildlife species present.

Habitat and population levels of big game (including mule deer, elk and antelope) and sage grouse would be maintained throughout the WSA. Projected mineral exploration activities on the 225 acres recommended nonsuitable for wilderness would cause only minor, short-term disturbance of wildlife during the activities with no effect on population levels.

Conclusion: Wildlife habitat and populations would be maintained on 5,975 acres designated wilderness.

Impacts on Livestock Grazing

Livestock use would continue at the current level of approximately 1,303 AUMs within the portions of the two allotments in the WSA. Vehicle use for livestock management and facility inspection/maintenance on 3 miles of ways would be precluded, resulting in inconvenience and a slight additional expense to livestock operators. Much of the area is presently inaccessible by motorized vehicle, and livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of two reservoirs and four developed springs. These maintenance activities would involve the use of 2 miles of closed ways and 0.5 mile of cross-country travel.

Conclusion: Livestock use would remain at 1,303 AUMs. Vehicle use of 3 miles of ways would be precluded with some inconvenience and a slight increase in cost to livestock operators.

Impacts on Recreation Use

Acquisition of the mineral estate on the 640-acre split-estate parcel would ensure preservation of a more natural setting for primitive recreational pursuits. The same slight decrease in recreational opportunities dependent on motorized access identified under the all wilderness alternative would occur under this alternative.

However, as the public becomes aware of the area’s wilderness qualities, including outstanding primitive recreation opportunities (particularly hiking and sightseeing associated with the highly scenic Castle Rock in the eastern portion of the WSA), increased visitation from wilderness users is projected to more than offset the slight decline in recreation use from the elimination of limited motorized recreational pursuits presently available in the area. The area’s present recreation use level of approximately 1,000 visitor days per year is projected to increase to approximately 1,200 visitor days per year.

Conclusion: The area’s recreation use level would slightly increase from 1,000 to approximately 1,200 visitor use days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,303 AUMs. Overall recreation use would increase by 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $2,400 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $2,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 6,200 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 6,200 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area’s special features, including sage grouse, Rocky Mountain elk and the high scenic values associated with Castle Rock, would be subject to the effects of the projected management actions. Projected actions include exploration of geothermal energy, extensive
mineral exploration activities with the development of one mine, and continued vehicle use limited to 3 miles of existing ways for recreational pursuits and for livestock management and facility maintenance at existing reservoirs and developed springs.

Naturalness

Continued vehicle use on the 3 miles of ways would maintain the impact of the vehicle tracks upon the naturalness and visually influence approximately 140 acres (slightly over two percent) of the WSA. Most of this influence upon the area's naturalness occurs in the south and central part of the WSA.

Site-specific energy and mineral exploration activities would cause short-term disturbance to the area's naturalness. This surface disturbance would be distributed throughout the WSA and would directly impact about 48 acres (slightly under one percent of the WSA) and visually influence approximately 5,000 acres (80 percent) of the WSA. It is assumed that most individual exploration sites would be able to be fully rehabilitated within 15 years following surface disturbing activities.

Development of the projected gold/silver open-pit mine and its 2 miles of new road construction in the northwestern portion of the WSA would cause a long-term loss of the area's naturalness, directly impact about 450 acres (seven percent) and visually influence about 60 percent of the WSA. Much of this influenced area overlaps with the area influenced by energy and mineral exploration activities.

Due to the WSA's small size and lack of topographic and vegetative screening in most areas where energy and mineral exploration and development is projected, approximately 5,300 acres (86 percent) of the area's naturalness is expected to be visually influenced by these activities. This influence would overlap with the 13 percent of the WSA presently influenced by existing unnatural features.

Solitude

Continued vehicle use on 3 miles of existing ways and human activity associated with energy and mineral exploration activities would cause short-term local impairment of the existing opportunities for solitude adjacent to the activity. This impact, although localized, would also be expected to occur throughout the WSA as exploration activities are pursued. Human activity associated with development of the gold/silver open-pit mine would greatly reduce opportunities to experience a sense of solitude in the northwestern portion of the WSA. The influence of the mine is extensive due to the small size of the WSA and lack of topographic or vegetative screening where this development is projected to occur in the higher elevations of the WSA.

Primitive and Unconfined Recreation

Vehicle use would continue to be limited to the existing 3 miles of ways as well as the 2 miles of permanent new roads constructed for the projected gold/silver open-pit mine operation (the additional 25 miles of temporary new roads constructed during energy and mineral exploration activities would be closed and reclaimed after exploration is completed). Vehicle use on the 27 miles of new roads associated with energy and mineral exploration and development would represent a substantial increase over present vehicle use in the WSA. The additional vehicle use would represent an adverse impact upon primitive, non-motorized recreation opportunities in the vicinity of these vehicle routes until they are closed and reclaimed.

Special Features

Continued vehicle use of existing ways would maintain the impacts upon the special features including disturbance of Rocky Mountain elk and sage grouse, and soil compaction and rutting of wetland meadow habitat at Horse Flat Reservoir. The extensive energy and mineral exploration activities would cause impacts to elk and sage grouse, as they are temporarily displaced to adjoining suitable habitats until such activities cease, and the disturbed areas, including 25 miles of new temporary road construction, are rehabilitated. Exploration activities occurring in the highly scenic portions of Castle Rock and its affiliated major ridgelines would reduce the scenic quality of these natural features over the 15-year period estimated for complete reclamation.

Development of the projected gold/silver open-pit mine in the northwestern portion of the WSA would cause a long-term impact to the elk and sage grouse in areas influenced by this large operation. Animals would be displaced to areas outside the WSA free from mining operations. Evidence of the mining operation, as viewed from vistas associated primarily with Castle Rock, would reduce enjoyment of general sightseeing in the area.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 5,300 acres (86 percent) of the WSA with further declines from other potential uses over the long term.
Impacts on Energy and Mineral Development

All of the 6,200 acres of public land in the WSA would be open to mineral entry.

Energy Development

Exploration for geothermal resources on 4,000 acres in the southern and northwestern portions of the WSA is projected to occur. This activity is projected to include the drilling of seven geothermal gradient wells, each 4,000 feet deep. Due to a lack of nearby uses for direct heat and a geothermal temperature apparently too low for electric generation, no development of this resource is anticipated.

Due to a lack of geologic evidence to justify an extensive exploration/development program for oil and gas, only casual, non-surface disturbing exploration without development is projected.

Conclusion: There would be no impact to energy development.

Mineral Development

Exploration for gold, silver and mercury is postulated to occur throughout the WSA and would include the drilling of 50 core holes. The discovery of an economic gold and/or silver deposit is postulated to occur in the northwestern portion of the WSA, followed by the development of an open pit mine.

Exploration for diatomite is expected to occur throughout the WSA and would include the drilling of 10 core holes. As the discovery of a large volume economic deposit is not anticipated, no development is projected.

Conclusion: The projected open-pit gold/silver mine would be developed.

Impacts on Vegetation

Little or no change would take place to vegetative composition and continued livestock grazing would maintain the present ecological status on most of the WSA. However, the projected open-pit mine would remove big sagebrush in early to middle seral stages on 450 acres and create an early seral stage in the disturbed area. Other projected energy and mineral exploration would result in localized removal of vegetation throughout the area. Revegetation would occur on these sites as mining reclamation is accomplished. Where disturbance would completely remove all vegetation and churn subsoils, no return to native conditions could be expected.

Conclusion: Vegetation would be removed on 450 acres in the northwestern portion of the WSA. Little change would take place to vegetative composition and no change to the ecological status on the remainder of the WSA.

Impacts on Wildlife

Surface disturbance related to projected development of the open-pit mine would cause long-term wildlife habitat losses on 450 acres in the northwestern portion of the WSA. Elk, mule deer, antelope and sage grouse would be displaced to adjoining suitable habitats because their cover and freedom from human interaction would be disrupted.

Surface disturbance related to projected geothermal and mineral exploration throughout the WSA would cause temporary habitat losses, with temporary displacement of elk, mule deer, antelope and sage grouse.

Wildlife species disturbed by temporary impacts related to geothermal and minerals exploration would probably eventually reoccupy most of the formerly-used areas after such activities cease, habitat is rehabilitated, and roads constructed for exploration are closed and reclaimed.

Adequate forage and cover for elk, mule deer, antelope and sage grouse would be ensured in the preparation of livestock allotment management plans and guidance provided in the Castle Rock wildlife habitat management plan. Forage losses on 450 acres disturbed by the projected open-pit mine would be offset by habitat management activities elsewhere within the nearly 1.9 million-acre Beulah Wildlife Unit.

Vehicle use limited to existing routes in the WSA would provide freedom from interaction for all wildlife present, except for disturbance during energy and mineral exploration activities on 27 miles of temporary exploration roads.

Conclusion: Displacement of elk, mule deer, antelope and sage grouse would result from the projected open-pit mine development, with loss of wildlife habitat on 450 acres.
Impacts on Livestock Grazing

Vehicle use for livestock management and facility inspection/maintenance would continue on 3 miles of ways. Heavy equipment would continue to be used as needed to maintain a reservoir and four developed springs. The surface disturbance of approximately 450 acres due to the projected open-pit mine development would remove forage and likely reduce the allocation of forage to livestock by 70 AUMs.

Conclusion: Projected mineral development would likely reduce the allocation of forage to livestock by 70 AUMs.

Impacts on Recreation Use

Motorized recreation use would continue on 3 miles of existing ways. Most of this use would be associated with hunting and hiking. New temporary roads for energy and mineral exploration would be available for motorized recreation use during periods of active exploration, but then unavailable as these roads are closed and rehabilitated as site-specific exploration activities cease. When exploration activities occur, motorized recreation activities would likely increase. Surface disturbance and disruption of wildlife from energy and mineral exploration would cause slight to moderate disturbance of the natural setting for recreation activities such as hunting and hiking. Due to the extent of new road construction throughout the WSA and the development of the projected gold/silver mine, there would be a long-term decline in primitive recreation opportunities.

Conclusion: Motorized recreation uses would slightly increase as mineral exploration activities occur. Projected development of a gold/silver mine would cause a long-term decline of recreation use to 800 from the current 1,000 visitor use days annually.

Impacts on Local Personal Income

Livestock grazing would decrease by 70 AUMs. Projected energy and mineral development would amount to one metallic mine. Overall recreation use would decrease by 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The effect on local personal income would probably decrease by approximately $3,000 in livestock grazing and recreation use outputs. However, an unknown increase attributable to the projected mineral development would occur.

Conclusion: Annual local personal income generated from resource outputs in the WSA would decrease by approximately $3,000, with an unknown increase from an unknown level of projected mineral development.

Unavoidable Adverse Impact of the Proposed Action

Under the Proposed Action (no wilderness/no action), wilderness values would be degraded by extensive energy and mineral exploration and the development of a large, open-pit gold/silver mine.

Unavoidable adverse impacts to wilderness values from these activities would result from 498 acres of surface disturbance, which would visually influence approximately 5,300 acres of the WSA. After reclamation of short-term mineral exploration activities, these direct visual influence effects would be reduced to approximately 450 acres and 3,700 acres, respectively. Removal of forage by mineral development would likely result in a livestock forage allocation reduction of 70 AUMs.

Relationship Between Short Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue and future development options (such as projected energy and mineral exploration and development) would remain open. Long-term productivity of wilderness values would be directly lost on approximately 450 acres of the WSA with surface disturbance from projected mineral development and indirectly lost on 3,700 acres (60 percent of the WSA).

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, projected mineral development would result in an irretrievable commitment of the mineral resource as well as an irreversible commitment of the wilderness resource directly on 450 acres and indirectly on 3,700 acres.
5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area could be manageable as wilderness, but if private lands adjacent to the WSA and the split-estate parcel were developed, it would be difficult to preserve wilderness values over the long term. Almost half of the WSA is bordered by private land, and some of that land is planted to agricultural crops. The croplands and farming activities can be seen from much of the western half of the WSA, and other lands within view of the WSA could also be developed. If that were to happen, it would reduce the apparent naturalness of the area.

In addition, under the all wilderness alternative, energy and mineral exploration on the split-estate parcel is projected to occur, and this activity could reduce the area's apparent naturalness. Because of the area's relatively small size and the location of the split-estate parcel near the center of the area in high and steep terrain, any surface disturbance from energy or mineral drill boring exploration and access to it could affect a substantial portion of the area. Acquisition of the mineral estate under the enhanced alternative would improve manageability.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is preferred because it would allow for the potential development of minerals, continued vehicle access, and unconstrained maintenance of existing livestock range projects. The split-estate parcel is located on the southern third of the major Castle Rock ridgeline. Road and drill site construction for geothermal and mineral exploration of the split-estate parcel or development of adjacent private land could reduce the area's apparent naturalness to the point that wilderness management would not be feasible. The area has a moderate potential for the occurrence of geothermal resources and a high potential for the occurrence of gold, silver, and mercury. The adjacent private land has a potential for development as investment property. Two narrow extensions in the southern part of the WSA have few wilderness values and could be easily affected by developments outside of the area. The relatively small size of the area and predominant lack of topographic or vegetative screening could compound these problems. The relatively small size of the area, steep terrain and constricted travel corridors would make it difficult to manage for solitude.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Logging is not a valid form of wildlife management and will damage key habitat elements. Response: At the present time, the WSA offers excellent wildlife habitat, and it is recognized that inappropriate logging activities would disrupt this status. The density of timber stands are presently optimum as quality habitat for big game species. Should the habitat decline, any management decision made to allow logging in the future would narrowly limit the extent and type of logging practices and be carefully planned with the objective of benefiting big game by achieving an increase in forage and habitat available for them. The Castle Rock Wildlife Management Plan precludes all timber removal except that which benefits wildlife. In this analysis, timber removal for wildlife management purposes is considered unlikely in the foreseeable future.

Comment: Mountain mahogany should be listed as a special feature. Response: The occurrence of this species in the region is not unusual or noteworthy and thus does not warrant listing as a special feature. The variety of plant communities, including mountain mahogany, is noteworthy and is listed as a special feature.
Comment: The area has historical significance and serves as a vision quest site for the North Paiute Indians. Response: The significance of the area as a vision quest site has been added to the document. Refer to Section 3, Affected Environment, regarding Special Features.

Comment: The area has historical significance from the pioneer days as a regional land mark. Response: The significance of the area as a historical regional land mark has been added to the document. Refer to Section 3, Affected Environment, regarding Special Features.

Table 1. Summary of the Proposed Management Under Each Alternative, Castle Rock WSA (OR-3-18)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>6,200</td>
<td>5,975</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>6,200</td>
<td>5,975</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed²</td>
<td>4</td>
<td>0.5</td>
<td>27</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired³</td>
<td>0</td>
<td>640</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>5,560</td>
<td>5,335</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Livestock Forage Allocation Reduction (AUMs)</td>
<td>0</td>
<td>0</td>
<td>70</td>
</tr>
</tbody>
</table>

¹Except for 3 miles of ways in the WSA, the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

²All new roads are temporary, mineral exploration roads (which would be reclaimed upon completion of exploration activities) except for 2 miles of new, permanent roads for open-pit mine development and operation under the No Wilderness/No Action alternative.

³Upon acquisition of mineral estate these lands would be withdrawn from mineral location and leasing.
Table 2. Summary of Environmental Consequences of Alternatives, Castle Rock WSA (OR-3-18)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 6,200 acres would protect existing wilderness values with some minor enhancement of those values.</td>
<td>Wilderness designation of 5,975 acres (including acquisition of the mineral estate on the 640-acre split-estate parcel) would fully protect and enhance existing wilderness values. The limited wilderness values on the 225-acre nonsuitable area would be further degraded by projected mineral exploration with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 5,300 acres (86 percent) of the WSA with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>There would be no impact on energy development. Wilderness designation would result in foregone production from one projected open-pit gold/silver mine.</td>
<td>There would be no impact on energy development. Wilderness designation would result in foregone production from a projected open-pit mine for gold and silver.</td>
<td>There would be no impact to energy development. The projected open-pit gold/silver mine would be developed.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Little or no change would occur to vegetation.</td>
<td>Little or no change would occur to vegetation in the area designated wilderness. Projected mineral exploration on the 225 acres proposed for nonwilderness would disturb 1 acre of vegetation.</td>
<td>Vegetation would be removed on 450 acres in the northwestern portion of the WSA. Little or no change would take place to vegetative composition or ecological status on the remainder of the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 6,200 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 5,975 acres designated wilderness.</td>
<td>Displacement of elk, mule deer, antelope and sage grouse would result from the projected open-pit mine development, with loss of wildlife habitat on 450 acres.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would remain at the current use level of 1,303 AUMs. Vehicle use of 3 miles of ways would be precluded with some inconvenience and a slight increase in cost to livestock operators.</td>
<td>Livestock use would remain at 1,303 AUMs. Vehicle use of 3 miles of ways would be precluded with some inconvenience and a slight increase in cost to livestock operators.</td>
<td>Projected mineral development would likely reduce the allocation of forage to livestock by 70 AUMs.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area's recreation use level of approximately 1,000 visitor days would slightly increase to around 1,200 visitor use days per year.</td>
<td>The area's recreation use level would slightly increase from 1,000 to approximately 1,200 visitor use days per year.</td>
<td>Motorized recreation uses would slightly increase as mineral exploration activities occur. Projected development of a gold/silver mine would cause a long-term decline of recreation use to 800 from the current 1,000 visitor use days annually.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $2,000.</td>
<td>Annual local personal income would increase by approximately $2,000.</td>
<td>Annual local personal income would decrease by approximately $3,000, with an unknown level of increase from mineral development.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Castle Rock WSA (OR-3-18)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, silver, mercury</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>See Map 4</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Confidence

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Castle Rock WSA (OR-3-18)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent of Allotment in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
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<tbody>
<tr>
<td>Castle Rock (No. 0211)</td>
<td>4,816</td>
<td>04/01-11/30</td>
<td>13</td>
<td>1,086</td>
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<tr>
<td>DeArmond Murphy (No. 0206)</td>
<td>6,503</td>
<td>07/01-10/30</td>
<td>5</td>
<td>217</td>
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<tr>
<td>Total</td>
<td>11,319</td>
<td></td>
<td></td>
<td>1,303</td>
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Table 5. Effects of Alternatives on Local Personal Income, Castle Rock WSA (OR-3-18) (1981 price levels)

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<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action</th>
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</thead>
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<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>-70</td>
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<td>Energy &amp; Mineral Development:</td>
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<td></td>
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<tr>
<td>Metallic Mines</td>
<td>Number</td>
<td>0</td>
<td>0</td>
<td>+1</td>
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<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+200</td>
<td>+200</td>
<td>-200</td>
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<tr>
<td><strong>PERSONAL INCOME FROM</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROJECTED OUTPUT CHANGES</strong></td>
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<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>-840</td>
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<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
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<td>Metallic Mines</td>
<td>$</td>
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<td>0</td>
<td>Unknown</td>
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<tr>
<td>Recreation Use</td>
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<td>+2,400</td>
<td>+2,400</td>
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<tr>
<td>Total</td>
<td>$</td>
<td>+2,400</td>
<td>+2,400</td>
<td>-3,240</td>
</tr>
</tbody>
</table>
To John Day
Baker Co.
To Baker
To John Day

LEGEND
- Castle Rock WSA
- Other WSA's

Castle Rock WSA

LOCATION MAP

U.S. Department of the Interior
Bureau of Land Management
Vale District
Castle Rock WSA
OR-3-18

MAP 1
21
Wilderness Study Area Boundary

Recommended Suitable for Wilderness

Recommended Non-suitable for Wilderness

Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness

U.S. Department of the Interior
Bureau of Land Management
Vale District

Castle Rock WSA
OR-3-18

ENHANCED ALTERNATIVE
Entire WSA:
Moderate Potential (MB) for Oil and Gas
(MA) for Diatomite

U.S. Department of the Interior
Bureau of Land Management
Vale District

Castle Rock WSA
OR-3-18

MODERATE OR HIGH POTENTIAL
MINERAL OR ENERGY RESOURCES

MAP 4
Castle Rock WSA, OR-3-18. Northern portion of WSA looking southeast toward Castle Rock. Recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. July 1983.

Castle Rock WSA, OR-3-18. Southern portion of WSA looking north to Castle Rock (to the left center). Within area recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. Includes some split-estate land to the right of Castle Rock at the end of the ridge. July 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Beaver Dam Creek Wilderness Study Area (OR-3-27)

1. Introduction

General Description of Study Area

The Beaver Dam Creek Wilderness Study Area (WSA) is located in Malheur County approximately 14 miles south of the town of Ironside and U.S. Highway 26 (see Map 1).

The WSA contains 19,580 acres of public land including 440 acres of split-estate lands in two parcels located near the WSA’s boundary (see Map 2). The WSA is roughly horseshoe-shaped, with boundaries composed of high standard dirt roads and adjacent private land. Private land represents over 50 percent of the area boundary. Private parcels along Bully Creek protrude deeply into the WSA and account for the horseshoe configuration. A 1-mile dead-end road that terminates at Kitten Canyon Reservoir enters the WSA from the east, forming part of the boundary.

The WSA has a complex, mountainous appearance due to numerous ridges and draws. This is most prevalent in the north-central portion of the area. The highest point, located in the northern portion of the WSA, is in the vicinity of Sheep Rock at 5,902 feet. Numerous intermittent and perennial drainages empty into Bully Creek, which runs through mostly private land near the middle of the WSA.

Junipers and patches of mountain mahogany grow in much of the area. Quaking aspen occupy many sites near streams and few ponderosa pine grow on some of the higher slopes. Understory vegetation is composed mostly of big sagebrush, bluebunch wheatgrass and Idaho fescue.

Interrelationships

The U.S. Soil Conservation Service has a snow survey marker located within the study area, which is checked periodically by aircraft during the winter to determine snow depths. (Snow surveys provide information on snow moisture content for water supply forecasts.) Snow measurements by aircraft would be allowed to continue in wilderness as an established practice. Any other method of snow measurement or maintenance of snow survey markers would have to be done by non-motorized means, such as by horseback or on foot. (Impacts on snow measurement surveys are not discussed further in this appendix.)

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Beulah Wildlife Unit, which contains 2,732-square-miles of land area. The WSA supports summer populations of approximately 200 mule deer, 60 Rocky Mountain elk and 25 pronghorn antelope. ODFW manages the Beulah Unit to produce 10 bucks per 100 does of mule deer and 15 bulls per 100 cows of elk, and manages hunting to maintain current antelope populations.

Due to the presence of conifers, juniper and aspen, as well as common rangeland habitats, there is a good variety of nongame wildlife species in relatively high numbers within the unit. The State goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels.

The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.
Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values;
- impact on private lands adjacent to the WSA (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume);
- impact on mineral exploration and development;
- impact on vehicle access to a snow marker for maintenance and ground checking by the Soil Conservation Service (see Interrelations section);
- impact on mule deer, Rocky Mountain elk, antelope, sage grouse and nongame wildlife populations and habitat;
- impact on watershed;
- impact on livestock grazing use levels; and
- impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981); professional judgment regarding approximate project locations; general site conditions; and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- no wilderness/no action (proposed action)

Partial and enhanced wilderness alternatives are not analyzed for the WSA. No major resource conflicts could be resolved by recommending a portion of the WSA suitable under a partial alternative. There are no major opportunities to improve manageability under an enhanced wilderness alternative. Impacts of an alternative recommending acquisition of the 440 acres of split-estate and closing the 1-mile dead-end road to Kitten Canyon Reservoir would not substantially differ from those identified under the all wilderness alternative.

All Wilderness

Under the all wilderness alternative, all 19,580 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the mineral estate of the split-estate lands would not be acquired and the dead-end road to Kitten Canyon Reservoir would remain open.

Energy and Mineral Development Actions

Wilderness designation would close 19,140 acres of public land within the WSA to mineral entry. A total of 440 acres of split-estate lands would be open to mineral exploration and development. Due to the lack of sufficient geologic evidence, no confirmed petroleum-bearing formations, no confirmed gold deposits, a moderately-thick volcanic cover on much of the surface, the presence of metamorphic rocks which may underlie much of the area, and the absence of any existing mineral leases and mining claims, only casual exploration for oil, gas and gold is postulated on the 440 acres of split-estate lands.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure
sufficient forage and cover for wildlife. No wildlife projects are proposed.

Watershed Management Actions

Approximately 10 small in-stream structures using on-site downed logs or logs brought in from outside of the WSA would be constructed to stabilize stream channel downcutting and facilitate sediment deposition.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 2,782 AUMs within the portions of the five allotments in the WSA. The seasons of use would remain as identified in Table 4. Vehicle use for livestock management on 9 miles of ways would be precluded. Management of livestock and maintenance of 18 miles of fence, four developed springs and one reservoir would be conducted mainly on horseback. Mechanized equipment would be used cross-country once every 5 to 10 years to maintain the reservoir and four developed springs.

Recreation Management Actions

Vehicle use would be precluded on the 9 miles of ways and the entire 19,580 acres of public land would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to the 9 miles of existing ways and 1 mile of existing dead-end road. Current recreational use is estimated to be approximately 800 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

A total of 19,140 acres of public land within the WSA would be open to mineral entry and 440 acres of split-estate land would be open to mineral exploration and development. With respect to oil and gas, the WSA has no confirmed petroleum-bearing formations, a moderately thick volcanic cover with some metamorphic rock outcrops on the surface and no current oil and gas leases. With respect to gold, there is a lack of direct evidence indicating favorability and there are no known deposits and no mining claims in the WSA. Therefore, due to the lack of sufficient geologic evidence to justify a major exploration/development program, only casual surface exploration of these energy and mineral resources is postulated.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Watershed Management Actions

Approximately 10 in-stream erosion control structures, as described under the all wilderness alternative, would be constructed to stabilize stream channel downcutting and facilitate sediment deposition.

Livestock Management Actions

Livestock grazing use would continue at the current level of approximately 2,782 AUMs in the WSA.

Vehicle use for livestock management and maintenance of the 18 miles of fence, one reservoir and four developed springs would continue on 9 miles of ways. The ways would be used five to ten times per year to check livestock, spread salt and maintain facilities. Three proposed reservoirs would be constructed to improve livestock distribution.

Recreation Management Actions

Vehicle use would continue to be limited by vehicle designation to the existing 9 miles of ways located throughout the WSA and the 1-mile dead-end road to Kitten Canyon Reservoir. Current recreation use is estimated to be approximately 800 visitor days per year.
Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those activities or resources that influence the character of the study area, or that may be affected by either of the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. About 16 percent of the study area is influenced by 26 interior, unnatural features. Most of the influence occurs in the northeast half of the area. The unnatural features consist of 5 fences totaling 18 miles, 15 ways totaling 9 miles, 4 developed springs, 1 reservoir, and the ruins of an old cabin.

The dead-end road to Kitten Canyon Reservoir, part of the WSA boundary, detracts from the naturalness of the open slopes of the canyon in which it is located. Other unnatural features outside the WSA that affect the naturalness of the area consist of boundary roads and a way along Bully Creek, on private property.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Due to good screening by topographic features and vegetation in the north-central portion of the WSA, there are outstanding opportunities for solitude. Junipers are scattered over most of the ridges, and pockets of aspen grow in the many drainages. However, opportunities for solitude are less available in the eastern, northeastern and southern portions of the WSA due to a combination of less topographic and vegetative screening and/or the narrow configuration of the WSA in these locations. There are few outside sights and sounds from activity on boundary roads and private property along Bully Creek, except during deer hunting season when vehicle use on existing roads and ways notably increases.

The north-central portion of the WSA also provides outstanding opportunities for primitive recreation. Bully Creek and its tributaries (McArthur, Godding, Beaver Dam, Steamboat, South and North Bully Creeks) provide varying topography and opportunities for relatively unrestricted foot travel. Hikers and equestrians can find opportunities throughout the area for viewing geologic, zoologic and botanic attractions. Destination backpacking and camping opportunities are enhanced by the perennial waters of Bully Creek and its tributaries. Beaver dams, aspen groves, and seeps and springs within juniper and aspen stands provide focal points for campers.

There are above average opportunities to hunt deer in most of the study area. Two small areas in the Bully Creek drainage offer good opportunities to hunt upland game including chukars, Hungarian partridge and quail. Opportunities exist for horseback travel throughout the WSA. The reservoir, seeps, four developed springs and perennial water in the drainages provide water for horses. The drainages are good areas for observing birdlife associated with riparian habitat.

Numerous opportunities exist for sightseeing and photographing zoologic, botanic and scenic attractions within the area. Cross-country skiing and snowshoeing during adequate snow years are possible but such conditions occur sporadically.

Special Features

The area is located almost entirely in a juniper steppe woodland, which is a transition zone (ecotone) between the ponderosa pine forest and sagebrush steppe. Much of the area consists of rolling sagebrush hills that support western juniper and patches of mountain mahogany. Stands of quaking aspen occur in pockets along drainages. The interspersion of these plant communities increases wildlife habitat edge and, consequently, the diversity of the natural community. Wildlife varies from forest nesting goshawks to sage grouse, and from antelope to Rocky Mountain elk. Sage grouse are currently a candidate for Federal listing in Oregon under the Endangered Species Act.

The diversity of plant communities, set amidst rolling sage-covered hills, also provide very scenic vistas throughout the WSA.
Diversity of the National Wilderness Preservation System

Based on the Bailey-Kuchler system of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Ochoco, Blue and Wallowa Mountains sections of the Oregon Natural Heritage Plan, the WSA contains the bluebunch wheatgrass/Idaho fescue and Sandberg’s bluegrass complex and the big sagebrush/bunchgrass community inside the forest zone.

There are two standard metropolitan statistical areas with populations over 100,000 within five hours’ driving time of the WSA: Boise, Idaho and Kennewick/Richland/Pasco, Washington.

Energy and Mineral Development

Energy and mineral resources of the WSA were evaluated from available geologic data by TERRA-DATA, a consulting firm under contract with BLM. Technical details of the findings of the evaluation are incorporated in a report titled “Assessment of Geology, Energy, and Mineral Resources of Castle Rock Geologic Resource Area.” A reevaluation of this study area was done by Barringer Resources, Inc. and supplemented by geochemical stream sediments sampling under a BLM contract in September 1984.

The WSA is within the Castle Rock geologic resource area, which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the energy and mineral potential classifications in the study area. Map 3 shows where energy and mineral resources have moderate or high potential for occurrence.

Surface geologic material found in the WSA consists largely of Tertiary basalt flows, andesite flows and breccias, and rhyolitic flows and breccias. Other exposed material consists of Quaternary alluvium and terrace gravels. Pre-Tertiary metamorphosed volcanic and metamorphosed sedimentary rocks crop out in the northwestern portion of the WSA and may underlie the entire area.

Energy Resources

Based upon indirect geologic evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas because of the possibility of oil-bearing rocks at depth. However, there has been no deep drilling in the area that has penetrated the volcanic or metamorphic cover to to confirm or deny this possibility. As of October 16, 1987, there were no oil and gas leases within the WSA.

Mineral Resources

There are no confirmed mineral deposits located within the WSA. However, based on indirect geologic evidence, the southeast portion of the WSA is considered to have a moderate potential for the occurrence of gold. As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Vegetation throughout the WSA is characteristic of higher elevation sagebrush steppe ecosystems bordering forest zones. The vegetation is in late seral stage in a majority of the study area. Vegetation in early to mid-seral stage occurs in the drainages and lower portions of the WSA.

A bluebunch wheatgrass/Idaho fescue community is the major potential natural community in the WSA. Numerous other plant communities occur throughout the area, including a sagebrush/Sandberg’s bluegrass community and a bluebunch wheatgrass/Thurber’s needlegrass community. Stands of quaking aspen occur in pockets along drainages and in steep canyons. Scattered individuals of ponderosa pine are found along slopes below ridgelines, and stands of western juniper are scattered throughout the area. Patches of mountain mahogany occur on some hillsides.

There are no known threatened or endangered plant species within the WSA.

Wildlife

The WSA provides some of the best quality summer range for mule deer and elk in Malheur County. An estimated 200 mule deer and 60 Rocky Mountain elk use the area. High quality habitat features for deer and elk include abundant water and cover, consisting of aspen, conifers, juniper and big sagebrush. Elk
numbers have been increasing in the general area for some time now. Winter use by both species normally occurs outside the WSA due to heavy snow.

An estimated 25 pronghorn antelope occupy the lower reaches of the WSA. However, most of the area is not preferred antelope habitat.

Small populations of upland game birds including sage grouse, blue grouse, quail, chukar and mourning doves occupy various reaches of the WSA. In Oregon, sage grouse is a candidate species for Federal listing under the Endangered Species Act.

Due to the presence of both range and forest habitats there are excellent densities and varieties of all forms of nongame wildlife including birds, mammals and amphibians.

There is no known fishery, either game or nongame, identified within the WSA. Riparian instability problems, described in the Watershed section, affect downstream fisheries in the Bully Creek drainage.

Watershed

Approximately 12 miles of perennial and intermittent streams drain the WSA. All waters within the WSA flow into Bully Creek.

Livestock grazing, coupled with intense local thunderstorms, has contributed to unstable slopes and streambanks within the watersheds. This has caused serious soil erosion losses and downcutting of some streams into relatively deep channels. Notable examples are evident on Puckett Creek and its tributaries.

The result of channel downcutting is a lowering of the water table, a decrease in summer flow, an increase in peak flows during spring runoff and thunderstorms, and a reduction of riparian vegetation, particularly aspen. Aspen roots contribute significantly to streambank stability within these drainages. With heavy use of the young aspen by wildlife and cattle, the aspen stands are failing to maintain themselves.

Channel downcutting and the reduction in riparian vegetation have also resulted in increased stream temperatures and sedimentation.

The meadow areas associated with seeps and springs have been damaged by cattle trampling the soggy soil into pits and mounds. With trampling, these areas become muddy and unstable, causing increased soil erosion.

Livestock Grazing

Portions of five grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for grazing by domestic livestock. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments include a reservoir, 18 miles of fenceline, and four developed springs.

Currently, livestock distribution within the WSA is uneven because some areas lack water. Livestock grazing pressure is heaviest in the vicinity of existing reservoirs, seeps and riparian areas.

Livestock operators use motor vehicles on ways in the WSA to inspect and maintain fences, check on livestock and spread salt. These trips are limited to approximately five to ten per year. Due to rugged topography and the lack of vehicle access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

The primary recreational activity within the WSA is hunting of deer, elk and upland game birds. Hunters use vehicles on the ways located throughout the WSA.

The area is currently receiving little recreation use for day hiking, backpacking, camping, winter sports, photography, bird watching and sightseeing. Overall, recreation use is estimated to be about 800 visitor days per year.

Local Personal Income

Livestock use at the current level of 2,782 AUMs and recreation use totaling 800 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $33,384 for livestock grazing and $9,600 related to recreation use of the WSA, for an overall total of $42,984. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.
4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 19,580 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All of the WSA would be designated wilderness, and wilderness values within the entire 19,580 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including juniper steppe woodland with a variety of vegetative communities and wildlife such as sage grouse and Rocky Mountain elk, would also be protected.

Naturalness

The area’s high quality of naturalness would be protected and enhanced by wilderness designation. Closure of 9 miles of ways which influence approximately 1,300 acres (slightly under seven percent of the WSA), would allow the ways to revegetate. Within three to five growing seasons the ways would revegetate, making them substantially unnoticeable. Once every 5 to 10 years, heavy equipment may need to use the closed ways and 1 mile of cross-country travel to maintain the four developed springs and one reservoir. This infrequent use would not prevent revegetation of the ways and would cause only nominal disturbance of vegetation along cross-country routes.

The in-stream erosion control structures would only slightly detract from naturalness, since they would be constructed of native material. After 2 or 3 years, the logs would be covered with silt and no longer visible. The bottom of the stream channel would rise and the stream banks would stabilize, resulting in a more natural appearing stream.

Solitude

The elimination of vehicle use on the 9 miles of ways would improve opportunities for solitude. However, once every 5 to 10 years, vehicles may use the ways to maintain the developed springs and reservoir, causing temporary impairment of opportunities for solitude in the vicinity of the ways, springs and reservoir.

Primitive and Unconfined Recreation

Closure of the 9 miles of ways to motorized use would increase opportunities for activities such as uninterrupted photography, birding, backpacking, hunting and hiking. A more natural, primitive setting would be provided, enhancing the quality of these activities.

By improving riparian habitat, the placement of erosion control structures would enhance opportunities for birding and wildlife viewing along 3 miles of stream.

Special Features

Eliminating vehicle use on 9 miles of ways would reduce impacts on special features within the WSA. These impacts include soil compaction, erosion and rutting of riparian areas, seasonal disturbance of wildlife, including sage grouse and Rocky Mountain elk, and impairment of scenic vistas.

Conclusion: Wilderness designation of the entire 19,580 acre WSA would result in protection and enhancement of the area’s existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 19,140 acres within the WSA to mineral entry. The 440 acres of split-estate lands would remain open to mineral exploration and development.

Energy Development

Exploration for oil and gas would be precluded on 19,140 acres. Exploration could occur on 440 acres of split-estate lands. Due to the lack of geologic evidence to justify an extensive exploration/development program, only casual, nonsurface-disturbing exploration activities, without development, is expected.
Conclusion: No impact to energy development is expected.

Mineral Development

Due to a lack of geologic evidence to justify an extensive exploration or development program, only causal nonsurface-disturbing exploration activities (without development) is expected.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Riparian vegetation would be moderately improved along 3 miles of stream upon placement of approximately 10 proposed in-stream erosion control structures. These structures would raise the water table, making it more accessible to plant roots.

Eliminating vehicle use on 9 miles of ways would allow them to revegetate within three to five growing seasons.

Continued livestock grazing would maintain the existing vegetative composition and ecological status on the rest of the WSA.

Conclusion: Riparian vegetation would improve along 3 miles of stream. Nine miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the area.

Impacts on Wildlife

Wildlife habitat for approximately 200 mule deer, 60 Rocky Mountain elk, 25 antelope, small populations of upland game birds including sage grouse, and a wide variety of nongame species would be improved under wilderness designation. Closure of 9 miles of ways would remove vehicle disturbance to all species of wildlife. Placement of 10 in-stream erosion control structures would improve wildlife habitat by increasing the amount of woody riparian vegetation such as willows and aspen. Downstream fisheries would improve due to water quality changes described under the Watershed section.

Conclusion: Wildlife habitat and populations would be maintained on 19,580 acres designated wilderness.

Impacts on Watershed

Ten in-stream erosion control structures would stabilize stream channel downcutting and facilitate sediment deposition along 3 miles of stream. With a rise in the stream bottom, a corresponding rise in water table would enhance riparian vegetation and water quality. More water would flow in summer, water temperatures would be lower and stream sediment would decrease.

The closure of 9 miles of ways would enhance revegetation efforts of existing ruts, thus decreasing erosion and stream sedimentation.

Continuance of current livestock-grazing practices, with heavy livestock utilization of the riparian zones, would continue to contribute to stream bank instability and channel downcutting on the WSA's other streams.

Conclusion: In the long term, watershed and stream channel conditions would improve along 3 miles of stream and continue in a downward trend along 9 miles of stream.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 2,782 AUMs within the portions of the five allotments in the WSA.

Wilderness designation would preclude the construction of three reservoirs, thus maintaining the uneven distribution of livestock that contributes to heavy grazing pressure on vegetation in the vicinity of existing reservoirs and riparian areas.

Vehicle use for livestock management on 9 miles of ways would be precluded, resulting in minor inconvenience and increased cost for livestock operators. Much of the area is inaccessible to vehicles, so day-to-day livestock management is currently accomplished by horseback. Heavy equipment would be used once every 5 to 10 years for maintenance of one reservoir and four developed springs. This activity would involve 1 mile of cross-country travel and the use of 1 mile of closed way.

Conclusion: Livestock grazing use would remain at 2,782 AUMs. Vehicle use of 9 miles of ways would be precluded causing slight inconvenience and increased cost to livestock operators.
Impacts on Recreation Use

Closing the 9 miles of ways to motorized use would make these access routes unavailable to vehicle-oriented hunters and the small number of day hikers who currently use the WSA. However, as the public becomes aware of the area's wilderness qualities, particularly in the north-central portion, increased visitation from wilderness users would offset the decreases in vehicle-oriented recreational pursuits.

Conclusion: The area's recreation use level of about 800 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at 2,782 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $43,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 19,580 acres

Impacts on Wilderness Values

Under this alternative, 19,580 acres would not be designated and wilderness values would not be protected by legislative mandate. Wilderness values of naturalness, solitude and opportunities for primitive and unconfined recreation would not be fully protected. Special features including juniper woodland steppe with a variety of vegetative communities and wildlife species such as sage grouse and Rocky Mountain elk, would be subjected to the effects of projected management activities. Projected actions include casual energy and mineral exploration, continued recreational and other vehicle use on 9 miles of ways, construction of three livestock reservoirs and placement of ten in-stream erosion control structures.

Naturalness

Continued vehicle use on the 9 miles of ways would maintain the impact of the vehicle tracks upon naturalness on about 1,300 acres (seven percent) of the WSA. Construction of three reservoirs would disturb 15 acres and visually influence naturalness on approximately 250 acres. Placement of a series of in-stream erosion control structures would have the same impact as under the all wilderness alternative. The structures would only slightly detract from naturalness, since they would be constructed of native material and would be hidden by silt after two or three years. The bottom of the stream channel would rise and the stream banks would stabilize, resulting in a more natural appearing stream.

Casual energy and mineral exploration would cause localized, short-term impacts on naturalness within the WSA. Activities could include the use of some cross-country vehicular travel for geophysical exploration of oil and gas in accessible portions of the WSA and the digging of mineral test pits for gold in a 2,040-acre area located in the southeastern part of the WSA. Reclamation of surface disturbance from casual mineral exploration activities would result in negligible long-term impacts on naturalness.

Solitude

Continued vehicle use on 9 miles of ways and 1 mile of dead-end road would maintain the short-term, local impairment of opportunities for solitude in the vicinity of these access routes. Human activity associated with casual mineral and energy exploration would cause short-term local impairment of solitude opportunities in the vicinity of the activity. Solitude opportunities in the unroaded north-central area would be reduced during the development of three reservoirs and during maintenance of these reservoirs once every 5 to 10 years.

Primitive and Unconfined Recreation

Vehicle use would continue to be limited to the existing 1 mile of dead-end road and 9 miles of ways. However, such use would continue to impair primitive and unconfined recreation use in the vicinity of these vehicle access routes.

By improving riparian habitat with the placement of erosion control structures, there would be enhanced opportunities for birding and wildlife watching along 3 miles of stream, the same as under the all wilderness alternative.
Casual mineral and energy exploration would slightly reduce primitive recreation opportunities on a short-term, local basis.

Special Features

Continued vehicle use of the 9 miles of ways would maintain the impacts upon special features. Those impacts include soil compaction, rutting and erosion of riparian areas, seasonal disturbance of sage grouse and Rocky Mountain elk and impairment of scenic values.

Casual mineral and energy exploration would result in a minimal, localized short-term disturbance of sage grouse and elk.

Conclusions: Projected activities would both directly and indirectly impair wilderness values over approximately 250 acres (approximately one percent) of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

A total of 19,140 acres of public land within the WSA would be open to mineral entry, and 440 acres of split-estate lands would be open to mineral exploration and development.

Energy Development

Casual exploration for oil and gas is expected. An extensive exploration/development program is not anticipated due to the lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on energy development.

Mineral Development

Casual exploration for gold within a 2,040-acre area in the southeast portion of the WSA is expected. A major exploration/development program is not anticipated due to the lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

Three reservoirs would be constructed, removing vegetation from approximately 15 acres. Since these reservoirs would improve livestock distribution and not increase AUMs, vegetation in the vicinity of existing reservoirs and riparian areas would slightly improve as a result of reduced livestock pressure. Riparian vegetation would be improved along 3 miles of stream as a result of erosion-control structures. Continued livestock grazing would maintain the existing vegetative composition and ecological status on the rest of the WSA.

Conclusion: Riparian vegetation would improve along 3 miles of stream. Range projects would remove vegetation on 15 acres and slightly improve vegetation in the vicinity of existing reservoirs and riparian areas. Little or no change would occur over the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 200 mule deer, 60 Rocky Mountain elk, 25 antelope, small populations of upland game birds including sage grouse, and a wide variety of nongame species would be maintained. Ten in-stream erosion control structures would improve wildlife habitat by increasing the amount of woody riparian vegetation such as willow and aspen. Downstream fisheries would improve due to water quality changes described under the Watershed section.

Adequate wildlife forage and cover would be ensured in the preparation of livestock management plan goals. Disturbance from casual mineral exploration would be minor. The construction of three livestock reservoirs would increase the availability of water outside of the stream corridor for cattle and slightly lessen the impacts of cattle grazing on key wildlife plant species such as willow and aspen.

Conclusion: Wildlife habitat and populations would be maintained over most of the area, with moderately improved riparian habitat on 3 miles of stream.

Impacts on Watershed

The continued use of ways would contribute to erosion and subsequent sedimentation of streams by preventing revegetation of rutted routes with downhill gradients which drain into existing channels.

Ten small in-stream erosion control structures would stabilize stream channel downcutting, facilitate sediment deposition and enhance riparian vegetation and water quality along 3 miles of stream.

Construction of three reservoirs would improve livestock distribution and relieve some grazing pres-
sure from streamside areas, resulting in minor improvement of the riparian areas. However, this improvement would not be great enough to reverse the downward trend of streams not benefited by the 10 erosion control structures.

Conclusion: In the long term, watershed and stream channel conditions would improve along 3 miles of stream and continue in a downward trend along 9 miles of stream.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 2,782 AUMs in the WSA. Vehicle use for livestock management and inspection and maintenance would continue on 9 miles of ways. Three reservoirs would be constructed, improving livestock distribution and reducing grazing pressure in the vicinity of existing reservoirs and riparian areas by encouraging grazing in areas that currently lack water.

Conclusion: Livestock grazing use would remain at 2,782 AUMs. Livestock distribution would improve.

Impacts on Recreation Use

Vehicle use by recreationists would continue on 9 miles of ways and 1 mile of dead-end road. Vehicle-oriented hunting of upland and big game species would continue. Disturbance of wildlife by mineral and energy exploration would cause slight, temporary, localized impairment of recreational activities, such as hunting and wildlife viewing. Overall, recreation use levels would remain unchanged.

Conclusion: The area’s recreation use level of about 800 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at 2,782 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $43,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), wilderness values and associated opportunities would be adversely affected by the construction of three reservoirs and casual mineral and energy exploration. These activities would result in 15 acres of total surface disturbance and visually influence approximately 250 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, existing short-term uses would continue. Future development options, including projected energy and mineral exploration and range project construction, would remain open. The long-term productivity of the wilderness values would be directly lost on 15 acres and indirectly lost on approximately 250 acres due to visual influence with the development of three reservoirs and casual exploration for energy or minerals, with further declines from other potential uses over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, reservoir construction would result in a direct irreversible commitment of pristine naturalness on 15 acres with a indirect visual influence of about 250 acres. The minor surface disturbance from casual energy and mineral exploration would be reversible due to required reclamation.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area would be manageable as wilderness, but it would be difficult to preserve wilderness values if the adjacent private lands were developed. Private property nearly bisects the WSA along Bully Creek.
producing narrow extensions in the southwestern and northwestern portions which are 1 mile or less wide and 2 to 4 miles long. Wilderness values would be difficult to manage in these extensions because an absence of screening subjects them to influences from outside unnatural sights and sounds. Over half of the boundary is formed by private property, and development of that property could result in a substantial increase in outside sights and sounds. Most of the adjacent private property is located along Bully Creek, in the center of the WSA, and along the northwest and southwest boundaries.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action because of the benefits to be gained by retaining development options and continuing existing uses in the WSA. This is particularly the case in view of the limited number of wilderness values in the northwestern, southern and eastern portions of the WSA. Projected activities include the development of three reservoirs for livestock utilization and the continued use of 9 miles of ways. Potential manageability problems posed by the area's irregular shape and the large amount of adjacent private land further limit the area's ability to provide high quality wilderness values into the future.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The value of springs and drainages to wildlife has been overlooked. Response: See discussion in Section 3, Affected Environment regarding Wildlife and Watershed.

Comment: Diatomaceous earth is readily available outside of the WSA making it unnecessary to mine the WSA for this mineral. Response: Diatomaceous earth is considered to have a low potential for occurrence (refer to Table 3). Therefore, no exploration or development is projected for this mineral.
Table 1. Summary of Proposed Management Under Each Alternative, Beaver Dam Creek WSA (OR-3-27)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>19,580</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>19,580</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>19,140</td>
<td>0</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs (number)</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Structural Watershed Projects Developed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-Stream Erosion Control Structures (number)</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

\(^1\)Except for 9 miles of ways in the WSA, the acreage shown is already closed to cross-country use through a "limited" ORV designation.
<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 19,580 acres would protect and enhance existing wilderness values.</td>
<td>Projected management actions would both directly and indirectly impair wilderness values over approximately 250 acres (about 1 percent) of the WSA with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy or mineral development is expected.</td>
<td>No impact to energy or mineral development is expected.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Riparian vegetation would improve along 3 miles of stream. Nine miles of ways would revegetate. Little or no change over the rest of the WSA.</td>
<td>Riparian vegetation would improve along 3 miles of stream. Range projects would remove vegetation on 15 acres and slightly improve vegetation in the vicinity of existing reservoirs and riparian areas. Little or no change over the rest of the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 19,580 acres designated wilderness, with moderately improved riparian habitat on 3 miles of stream.</td>
<td>Wildlife habitat and populations would be maintained over most of the area, with moderately improved riparian habitat on 3 miles of stream.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Watershed and stream channel conditions would improve along 3 miles of stream and continue in a downward trend along 9 miles of stream.</td>
<td>Watershed and stream channel conditions would improve along 3 miles of stream and continue in a downward trend along 9 miles of stream.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock grazing use would remain at 2,782 AUMs. Vehicle use of 9 miles of ways would be precluded causing slight inconvenience and increased cost to livestock operators.</td>
<td>Livestock grazing use would remain at 2,782 AUMs. Livestock distribution would improve.</td>
</tr>
<tr>
<td>Recreation</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected.</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income generated from resource outputs in the WSA would remain at approximately $43,000.</td>
<td>Annual local personal income generated from resource outputs in the WSA would remain at approximately $43,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Beaver Dam Creek WSA (OR-3-27)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (Gold)</td>
<td>See Map 3</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
</tbody>
</table>

**Legend:**

**Level of Potential**
- O - No indication for accumulations of energy/mineral resource
- L - Low potential for accumulations of energy/mineral resource
- M - Moderate potential for accumulations of energy/mineral resource
- H - High potential for accumulations of energy/mineral resource

**Level of Certainty**
- A - Insufficient data or no direct evidence
- B - Indirect evidence available
- C - Direct evidence but quantitatively minimal
- D - Abundant direct and indirect evidence

### Table 4. Existing Livestock Use, Beaver Dam Creek WSA (OR-3-27)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Basin (No. 0222)</td>
<td>7,290</td>
<td>April-Oct</td>
<td>23</td>
<td>1,753</td>
</tr>
<tr>
<td>Rail Canyon (No. 0205) (No. 0205)</td>
<td>3,023</td>
<td>April-Oct</td>
<td>27</td>
<td>908</td>
</tr>
<tr>
<td>Clover Creek Individual (No. 0210)</td>
<td>453</td>
<td>April-Oct</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>Castle Rock (No. 0211)</td>
<td>4,816</td>
<td>April-Oct</td>
<td>1</td>
<td>43</td>
</tr>
<tr>
<td>DeArmond/Murphy (No. 0206)</td>
<td>6,503</td>
<td>April-Oct</td>
<td>1</td>
<td>31</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>22,085</strong></td>
<td></td>
<td><strong>2,782</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Beaver Dam Creek WSA (OR-3-27) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGES IN RESOURCE OUTPUTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
NORTHERN MALHEUR PLANNING AREA

LEGEND
- Beaver Dam Creek WSA
- Other WSA's

LOCATION MAP

U.S. Department of the Interior
Bureau of Land Management
Vale District
Beaver Dam Creek WSA
OR-3-27

MAP 1
U.S. Department of the Interior
Bureau of Land Management
Vale District

Beaver Dam Creek WSA
OR-3-27

MODERATE OR HIGH POTENTIAL
MINERAL OR ENERGY RESOURCES

MAP 3
45
Beaver Dam Creek WSA, OR-3-27. Central portion of WSA looking southwest across Beaver Dam Creek drainage. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. Pinto Springs is at aspen grove at lower right. Castle Rock Ridge (OR-3-18) is visible on horizon to the left. October 1983.

Beaver Dam Creek WSA, OR-3-27. Central portion of WSA looking east at Steamboat Rock in Steamboat Creek drainage. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. October 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Camp Creek Group Wilderness Study Areas (OR-3-31, 3-32, 3-33, 3-35)

1. Introduction

General Description of Study Area

The Camp Creek, Cottonwood Creek, Gold Creek and Sperry Creek Wilderness Study Areas (WSAs) are located in Malheur County, approximately 32 miles southwest of Vale and from 14 miles to immediately south of U.S. Highway 20 (see Map 1).

The four WSAs contain 47,100 acres of public land (see Map 2). Six parcels of split-estate land, totaling 1,760 acres, are scattered within the WSAs. The southernmost WSA, Cottonwood Creek, shares an 8-mile common road boundary along Cottonwood Creek Canyon with the Camp Creek WSA. Immediately north of the Camp Creek WSA across a 1-mile common road boundary is the Gold Creek WSA. To the west of the Gold Creek WSA along a 4-mile common road boundary is the Sperry Creek WSA.

The size and shape of the WSAs vary considerably. Camp Creek WSA is oblong with a narrow, forked extension in the southern portion along the two forks of Cherry Creek Canyon. The WSA is approximately 8 miles long, 4 miles wide and contains 19,200 acres. It is bordered on the east by one parcel of private property and a low standard BLM road that follows Cottonwood Creek, on the south by rimrock and private property, and on the west and north by a high standard BLM dirt road, a high standard county dirt road, and one parcel of private property.

Cottonwood Creek WSA is also oblong, approximately 8 miles long, 2 miles wide, and contains 8,700 acres. The study area is bordered on the north and west by a low standard BLM road that parallels Cottonwood Creek and Alder Creek, on the south by rims and ridges, and on the east by a high standard BLM dirt road. A 40-acre parcel of private land abuts the western boundary and a 280-acre private parcel abuts the eastern boundary.

Gold Creek WSA is shaped like a horseshoe, contains 13,600 acres and is approximately 5 miles wide and 7 miles long. The study area is bordered on the west by a low standard dirt road, on the south by a high standard BLM dirt road, on the east by a way and a parcel of private property, and on the north by private property and U.S. Highway 20. Adjacent to the northern boundary lies a 10-acre highway gravel stockpile area. A 0.5-mile-long dead-end road enters the WSA from the southern boundary road and forms part of the boundary. It provides access to North Fork Squaw Creek Reservoir.

Sperry Creek WSA is shaped like a triangle, contains 5,600 acres, and is approximately 3 miles wide and 4.5 miles long. The study area is bordered on the east by a low standard dirt road, on the south by a high standard BLM dirt road, on the west by private property and a high standard BLM dirt road, and on the north by private property.

All of the four WSAs are separated by BLM roads. Between Camp Creek and Cottonwood Creek WSAs there is also a 40-acre private parcel, located at the confluence of Cherry and Cottonwood Creeks. The combined shape of the four WSAs resembles an hourglass approximately 15 miles long, 6 miles wide at each end, and 1.5 miles wide in the middle. Combined acreage in the four WSAs is 47,100 acres.

These WSAs are characterized by deep, rugged canyons which dissect rimrock-edged tablelands. Average steepness of the slopes ranges from 25 to 90 percent, making them very difficult to traverse. Elevations range from 2,700 to 5,300 feet.

Each WSA has its own individual characteristics. The northwestern portions of Camp Creek WSA are characterized by tableland, while the rest of the area is dissected by steep canyons. Four major side canyons drain into Cottonwood Creek, the study area’s principal stream.
Cottonwood Creek WSA is dominated by the canyons of Cottonwood Creek and Little Cottonwood Creek. The eastern half of the study area is gently sloping upland.

The southwestern portion of Gold Creek WSA is characterized by tableland, while the remainder contains the steep canyons of Gold Creek and the North Fork of Squaw Creek.

The southern third of Sperry Creek WSA is mostly tableland, while the rest of the area is cut by the steep canyons of Sperry and Indian Creeks.

All four study areas lie within the sagebrush steppe ecological zone, a semiarid ecosystem dominated by sagebrush-grass plant associations. The dominant vegetation on the tablelands is low sagebrush and bluebunch wheatgrass. In the canyons, it is Wyoming big sagebrush and bluebunch wheatgrass, with some bitterbrush and Idaho fescue. The canyon bottoms support pockets of riparian vegetation.

**Interrelationships**

A portion of the Gold Creek WSA along the Malheur River is part of two power site reserves which identify the land for potential water power and water storage development. These "withdrawals" are scheduled for review in the next few years, which may lead to their revocation. Power site development is not foreseen, and therefore not discussed further.

All four WSAs are located within the Oregon Department of Fish and Wildlife's (ODFW) Malheur River Wildlife Unit which contains 2,952-square-miles of land area. The WSA supports approximately 250 mule deer and 50 pronghorn antelope. ODFW manages the Malheur unit to produce 8 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Redband trout, present in all but the Sperry Creek WSA, is a Federal candidate for listing under the Endangered Species Act. The ODFW management goal is to maintain the genetic purity of native fish and to at least maintain their current distribution within the State. Nongame species present include a large variety of raptors such as golden eagles and prairie falcons. The ODFW management goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The Camp Creek and Cottonwood Creek WSAs are identified as suitable habitat for reintroduction of California bighorn sheep in State and BLM planning documents. California bighorn sheep is a Federal candidate for listing under the Endangered Species Act. The State management goal is to restore bighorn sheep into as much suitable unoccupied habitat as possible for the next 10 to 15 years. However, wild sheep could not be reintroduced until domestic sheep use is terminated in the Harper grazing allotment. At present there are no plans to terminate domestic sheep use.

Except for the reintroduction of bighorn sheep, the proposed action for these WSAs conforms with ODFW management goals for game and nongame species.

Malheur County has not identified any conflicts between the proposed action and county plans.

**Scoping**

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on use of adjacent private property (effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on potential energy and mineral exploration and development,
- impact on the existing Pacific Power & Light (PP&L) transmission line, located along the southern boundary of Cottonwood Creek and Camp Creek WSAs,
- impact on the existing multi-use utility and transportation corridor along the Malheur River, located just outside the northern boundary of Sperry Creek and Gold Creek WSAs,
- impact on watershed,
- impact on mule deer, antelope, sage grouse, raptors and redband trout,
- impact on livestock grazing use levels and management,
- impact on recreation use levels, and
- impact on the wild horse herd in the Cottonwood Creek WSA, and construction of an access road to the wild horse trap. (The wild horse herd which used a portion of Cottonwood Creek WSA has been removed from the WSA. Therefore, wild horses would not be affected by any of the wilderness alternatives and are not discussed further in this appendix).

No other issues specific to these WSAs were raised by BLM or the public.
2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgement regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness
- partial wilderness (proposed action)
- no wilderness/no action

All Wilderness

Under the all wilderness alternative, each of the four WSAs would be recommended suitable as wilderness and managed as a separate wilderness area: 19,200 acres in Camp Creek WSA, 8,700 acres in Cottonwood Creek WSA, 13,600 acres in Gold Creek WSA, and 5,600 acres in Sperry Creek WSA, a total of 47,100 acres (see Map 2). For purposes of analysis, this alternative assumes that none of the private land or mineral estate of the split-estate land would be acquired. The roads between the WSAs and the dead-end road into Gold Creek WSA would remain open.

Energy and Mineral Development Actions

Wilderness designation would close 45,340 acres of public land within the four WSAs to mineral entry. A total of 1,760 acres of split-estate land would be open to mineral exploration and development. In addition, a 40-acre parcel of private land surrounded by, but outside of the Camp Creek and Cottonwood Creek WSAs, would be open to mineral exploration and development at the landowners' discretion. The acreage open and closed to mineral exploration and development in each of the WSAs is listed in Table 1.

Exploration for energy resources would be prohibited on 45,340 acres. Due to a lack of direct evidence indicating favorability, the absence of confirmed petroleum-bearing formations, and the presence of a fairly thick volcanic cover, only casual non-surface disturbing exploration (with no development) is postulated for oil and gas on the 1,760 acres of split-estate lands and the 40-acre parcel of private land.

Exploration for mineral resources would be prohibited on 45,340 acres, including the following minerals: (1) optical calcite, which has a high potential for occurrence in the Sperry Creek WSA and a moderate potential for occurrence throughout the remaining three WSAs; (2) perlite, which has a moderate potential for occurrence throughout the entire area; (3) gold, which has a moderate potential for occurrence on approximately 1,900 acres in the northern portion of the Camp Creek WSA and on approximately 7,600 acres in the northern portion of the Gold Creek WSA; and (4) bentonite, which has a moderate potential for occurrence throughout the Sperry Creek WSA.

Exploration for optical calcite, as a potential source of gold, is postulated to occur on the 1,760 acres of split-estate lands and the 40-acre parcel of private land. This effort would most likely consist of surface examination and sampling of optical calcite, followed by core drilling where gold occurrences were found. These tests would involve up to six core holes and may disturb four acres, including 3 miles of new road construction. Refer to Table 2 for a description of projected exploration for these minerals in the individual WSAs. The discovery of an economic gold deposit is not expected and no development is projected.

Exploration for perlite is postulated to occur on the 240-acre parcel of split-estate land in the northern portion of the Sperry Creek WSA. This effort would most likely consist of surface examination and sampling, followed by the digging of one bulk sample pit. The resulting surface disturbance is expected to be 0.5 acres, including 0.25 miles of new road construction. The discovery of an economically mineable perlite deposit is not expected and no development is projected.
Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration, with no development, is postulated for bentonite on the 240-acre parcel of split-estate land in the northern portion of the Sperry Creek WSA.

Total surface disturbance resulting from energy and mineral exploration in the four WSAs of the Camp Creek Group is postulated to be 4.5 acres, including 3.25 miles of new road construction.

Utility Corridor Development Actions

A 2-mile-wide utility corridor, proposed for designation in the Northern Malheur Management Framework Plan (MFP), would be shifted to the south to avoid Camp Creek and Cottonwood Creek WSAs.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 5,666 AUMs within the portions of two allotments in the four WSAs. The seasons of use would remain as identified in Table 3 for the two allotments. Vehicle use for livestock management on 13 miles of ways would be precluded. Six miles of fence would be constructed in the Camp Creek (1 mile) and Cottonwood Creek (5 miles) WSAs to allow a change in livestock management to improve riparian vegetation on 7 miles of stream. Management of livestock and maintenance of 13 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain 12 reservoirs and nine springs.

Recreation Management Actions

The entire 47,100 acres (excluding the dead-end road into Gold Creek WSA) would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to existing roads and ways (the roads between the WSAs, the 0.5 mile dead-end road in Gold Creek WSA and 13 miles of existing ways). Current recreational use is estimated to be 1,000 visitor days per year.

Enhanced Wilderness

Under the enhanced wilderness alternative, the entire areas of all four WSAs would be combined into a single wilderness area and a total of 49,340 acres would be recommended suitable as wilderness (see Map 3). This acreage includes 2,200 acres of non-WSA public land in Simmons Gulch which could be added to Gold Creek WSA. It also includes the 40-acre private inholding and the mineral estate of 1,760 acres of split-estate land which would be acquired, if the owners are willing, through purchase or exchange.

Eight miles of road between Camp Creek WSA and Cottonwood Creek WSA, 1 mile of road between Camp Creek WSA and Gold Creek WSA, 4 miles of road between Sperry Creek WSA and Gold Creek WSA, 0.5 mile of road into Gold Creek WSA, and a 2.5-mile-long dead-end road in Simmons Gulch which previously formed a portion of the Gold Creek WSA boundary would be closed.

Energy and Mineral Development Actions

Wilderness designation would close 45,340 acres of public land in the four WSAs to mineral entry. This includes 2,200 acres of public land adjacent to the Gold Creek WSA, which would be included in wilderness. After acquisition of 1,760 acres of mineral estate on split-estate lands and a 40-acre tract of private land, these lands would also be closed to mineral entry. The acres closed to mineral entry in each of the four WSAs are listed in Table 4.

Exploration for energy resources would be prohibited on 49,340 acres. Exploration for mineral resources would be prohibited on 49,340 acres, including the following minerals: (1) optical calcite, which has a high potential for occurrence in the Sperry Creek WSA and a moderate potential in the remainder of the area; (2) perlite, which has a moderate potential for
occurrence throughout the entire area; (3) gold, which has a moderate potential for occurrence on approximately 1,900 acres in the northern portion of the Camp Creek WSA and approximately 9,800 acres in the northern portion of the Gold Creek WSA; and (4) bentonite, which has a moderate potential for occurrence in the Sperry Creek WSA.

Utility Corridor Development Actions

A 2-mile-wide utility corridor, proposed for designation in the Northern Malheur MFP, would be shifted to the south to avoid Camp Creek and Cottonwood Creek WSAs.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 5,666 AUMs in the portions of two allotments in the four WSAs. The season of use would remain as identified in Table 3 for the two allotments. Six miles of fence would be constructed in the Camp Creek (1 mile) and the Cottonwood Creek (5 miles) WSAs to allow a change of livestock management to improve riparian vegetation on 7 miles of stream. Vehicle use for day-to-day livestock management on 13 miles of ways and 16 miles of road would be precluded. Management of livestock and maintenance of 13 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain 12 reservoirs and nine springs.

Recreation Management Actions

The entire 49,340 acres would be closed to motorized vehicle use, assuming acquisition of the private inholding. Presently, vehicle use is limited by vehicle designation to existing roads and ways (13 miles of roads between the WSAs, two existing dead-end roads in Gold Creek WSA totaling 3 miles, and 13 miles of existing ways). Current recreational use is estimated to be 1,000 visitor days per year.

Partial Wilderness (Proposed Action)

Under the partial wilderness alternative, the entire areas of Gold Creek WSA and Sperry Creek WSA would be combined; and portions of Camp Creek WSA (17,770 acres) and Cottonwood Creek WSA (7,700 acres) would be combined. Each combination would then form a single wilderness area. A total of 46,870 acres would be recommended suitable as wilderness (see Map 4). This acreage includes the addition of 2,200 acres of public land in Simmons Gulch to the Gold Creek WSA. The mineral estate of 1,760 acres of split-estate land would be acquired, if the owners are willing, through purchase or exchange.

Between the two combined wilderness areas, a 1-mile-long road would remain open. Four miles of road between Sperry Creek WSA and Gold Creek WSA, 6 miles of road between Camp Creek WSA and Cottonwood Creek WSA, and two dead-end roads totaling 3 miles in Gold Creek WSA would be closed.

A total of 2,430 acres would be recommended nonsuitable for wilderness designation: 1,430 acres in Camp Creek WSA and 1,000 acres in Cottonwood Creek WSA. The boundary would exclude the two forks of Cherry Creek, in the southern portion of Camp Creek WSA, and the tableland in the eastern portion of Cottonwood Creek WSA.

Energy and Mineral Development Actions

Wilderness designation would close 42,910 acres of public land in the four WSAs to mineral entry. In addition, 2,200 acres of public land adjacent to the Gold Creek WSA would be included in wilderness and closed to mineral entry. If acquisitions were successful, 1,760 acres of split-estate lands would also be closed to mineral entry. A total of 2,430 acres of public land recommended as nonsuitable for wilderness designation would be open to mineral entry. In addition, a 40-acre tract of private land surrounded by, but outside of the Camp Creek and Cottonwood Creek WSAs, would be open to mineral exploration.
and development at the landowners' discretion. The acreage open and closed to mineral exploration and development in each of the four WSAs is listed in Table 5.

Exploration for energy resources would be prohibited on 46,870 acres. Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum-bearing formations, the presence of a fairly thick volcanic cover, and an absence of existing mineral leases, only casual exploration, with no development, is postulated for oil and gas on the 2,430 acres of public land recommended nonsuitable and the 40-acre parcel of private land.

Exploration for mineral resources would be prohibited on 46,870 acres, including the following minerals: (1) optical calcite, which has a high potential for occurrence in the Sperry Creek WSA and a moderate potential for occurrence in the rest of the area; (2) perlite, which has a moderate potential for occurrence in the entire area; (3) gold, which has a moderate potential for occurrence on approximately 1,900 acres in the northern portion of the Camp Creek WSA and on approximately 9,800 acres in the northern portion of the gold Creek WSA; and (4) bentonite, which has a moderate potential for occurrence in the Sperry Creek WSA.

Exploration for optical calcite as a potential source of gold is postulated to occur on the 2,430 acres of public land recommended as nonsuitable and the 40-acre parcel of private land. This effort would most likely consist of surface examination and sampling of optical calcite, followed by core drilling where gold occurrences were found. These tests would involve up to seven core holes on public land (live in the Cottonwood Creek WSA and two in the Camp Creek WSA) and may disturb three acres (one acre in Cottonwood Creek WSA and two acres in the Camp Creek WSA), including 2 miles of new road construction (0.5 miles in the Cottonwood Creek WSA and 1.5 miles in the Camp Creek WSA). The discovery of an economic gold deposit is not expected and no development is postulated.

Due to a lack of direct evidence indicating favorability, a lack of confirmed occurrences, and a lack of mining claims, only casual exploration without development is postulated for perlite on the 2,430 acres of public land recommended as nonsuitable and the 40-acre parcel of private land.

Total surface disturbance resulting from energy and mineral exploration is postulated to be three acres, including 2 miles of road construction.

Utility Corridor Development Actions

A 2-mile-wide utility corridor, proposed for designation in the Northern Malheur MFP, would be shifted to the south to avoid Cottonwood Creek WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 5,666 AUMs in the portions of two allotments in the four WSAs. The season of use would remain as identified in Table 3 for the two allotments. Six miles of fence would be constructed in the Camp Creek (1 mile) and the Cottonwood Creek (5 miles) WSAs to allow a change of livestock management to improve riparian vegetation on 7 miles of stream. In the portion of the WSA recommended suitable as wilderness, vehicle use for day-to-day livestock management on 12 miles of ways and 13 miles of roads would be precluded. Management of livestock and maintenance of 11.5 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain 12 reservoirs and nine springs.

In the portion of the WSA recommended nonsuitable as wilderness, vehicle use for day-to-day livestock management would continue on 2 miles of road and 1 mile of way. In addition, 1 mile of road between Gold Creek WSA and Camp Creek WSA would remain open to vehicle use.

Recreation Management Actions

A total of 46,870 acres, including 13 miles of roads and 12 miles of ways, would be closed to motorized vehicle use. In the nonsuitable portion of the WSA,
vehicle use would continue to be limited by vehicle designation to 2 miles of existing road and 1 mile of existing way. In addition, a mile of road between Gold Creek WSA and Camp Creek WSA would remain open to vehicle use. Current recreational use is estimated to be 1,000 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire area of all four WSAs nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 47,100 acres of public land in the four WSAs would be open to mineral exploration and development. The acreage open to mineral exploration and development in each WSA is listed in Table 6.

Due to a lack of direct geologic evidence indicating favorability, an absence of confirmed petroleum-bearing formation, a relatively thick volcanic cover, and an absence of mineral leases, only casual exploration with no development is postulated in the area for oil and gas.

Although optical calcite, which has a high potential for occurrence in the Sperry Creek WSA and a moderate potential for occurrence throughout the remaining three WSAs, has a very small market which requires material of very high quality, it is also an indicator of gold mineralization. Consequently, exploration for optical calcite, as a potential source of gold, is postulated to occur throughout the four WSAs. This effort would most likely consist of surface examination and sampling of optical calcite, followed by core drilling where gold occurrences were found. These tests would involve up to 69 core holes and would disturb 41 acres, including 30 miles of new road construction. The discovery of an economic deposit is not expected and no development is postulated. Refer to Table 7 for a description of exploration for these minerals in the individual WSAs.

Exploration for perlite, which has a moderate potential for occurrence is postulated to occur in the Sperry Creek WSA. This effort would most likely consist of surface examination and sampling, followed by the digging of two bulk sample pit/trenches, one in the northern portion of the WSA and one in the east-central portion of the WSA. The resulting surface disturbance is expected to be one acre, including 0.7 mile of new road construction. The discovery of an economically-mineable deposit of perlite is not expected and no development is postulated. While perlite is suspected to occur in the remaining three WSAs, there is no direct geologic evidence indicating favorability, there are no confirmed deposits of perlite, and there are no mining claims. Consequently, only casual exploration with no development is postulated for this mineral.

Due to a lack of direct geologic evidence indicating favorability, an absence of confirmed occurrences, and an absence of mining claims, only casual exploration without development is postulated for bentonite, which has a moderate potential for occurrence in the Sperry Creek WSA.

Total surface disturbance resulting from energy and mineral exploration is estimated to be 42 acres, including 30.7 miles of new road construction. No development is postulated.

Utility Corridor Development Actions

A 2-mile-wide utility corridor, proposed in the Northern Malheur MFP, would be designated along the route followed by the existing PP&L powerline and would be available for additional lines along its 0.5-mile length through the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 5,666 AUMs in the portions of two allotments in the four WSAs. The season of use would remain as identified in Table 3.

Four reservoirs would be built in the Cottonwood Creek WSA, two reservoirs would be built in the Gold Creek WSA, and two springs would be developed in Sperry Creek WSA to improve livestock distribution.
Six miles of fence would be constructed in the Camp Creek (1 mile) and the Cottonwood Creek (5 miles) WSAs to allow a change of livestock management to improve riparian vegetation on 7 miles of stream.

Vehicle use for livestock management and maintenance of the 13 miles of fence, 11 reservoirs and nine springs would continue on 13 miles of ways and 16 miles of roads. The ways are used 25 to 30 times per year to check livestock, spread salt, maintain facilities, and move and supply sheep camps. The roads are used 55 to 60 times per year for the same purposes.

Recreation Management Actions

Vehicle use would continue to be restricted to roads between the WSAs, the 0.5 mile dead-end road into Gold Creek WSA, and 13 miles of existing ways. Current recreational use is estimated to be 1,000 visitor days per year.

Summary

Table 8 summarizes the projected management actions under each alternative.

Table 9 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

All four of the WSAs are in a highly natural condition, containing only a few substantially unnoticeable signs of people. The rugged terrain has limited the number of unnatural features in each of the WSAs. Most of the developments are located near the boundary roads, and are substantially unnoticeable because of topographic screening, natural revegetation, or small size. A total of 50 unnatural features in the four WSAs influence approximately seven percent of the combined area. Table 10 lists the unnatural features in each WSA and the area influenced by these developments.

Unnatural features outside the WSAs that affect naturalness inside the WSAs include boundary roads; a PP&L powerline which influences the extreme southern portion of Camp Creek and Cottonwood Creek WSAs; and developments within the Malheur River Canyon, which contains Highway 20, railroad tracks, powerlines, ranch developments, pastures, fences and dirt roads that influence the steep, northern slopes of the Gold Creek and Sperry Creek WSAs. None of these outside developments substantially diminish naturalness inside the WSAs. Even developments within the Malheur River Canyon, which might be expected to have a major impact on naturalness, influence only about 800 acres in Gold Creek and Sperry Creek WSAs (slightly more than four percent of the combined area of these two WSAs).

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

All four of the WSAs offer outstanding opportunities for solitude and primitive and unconfined types of recreation. Opportunities for solitude are outstanding primarily because of the areas' diverse topography. The WSAs contain over 50 miles of major drainages and numerous side drainages. However, the areas' rugged topography restricts most visitor use to the tablelands and canyon bottoms. Travel from canyon bottoms to the tablelands is generally limited to breaks in the rimrock where game and livestock trails provide access.

The tablelands in the western portion of Camp Creek WSA and the southern portions of Gold Creek and Sperry Creek WSAs, and the gentle slopes in the eastern portion of Cottonwood Creek WSA, have minimal relief and provide little topographic screening. Vegetative screening is limited primarily to pockets of riparian vegetation in the canyon bottoms.

Table 11 identifies outstanding primitive recreation opportunities in each WSA. The Camp Creek WSA offers the largest number of outstanding opportunities for primitive recreation because of its larger size and greater diversity.

Because the tablelands lack the diversity of attractions offered by the canyons, most visitor use would occur in the major canyons of Cottonwood Creek, Little Cottonwood Creek, Camp Creek, Wildcat Creek, Tims Creek, North Fork Squaw Creek, Gold Creek, Sperry Creek and Indian Creek. Major access points would probably be at the north end of Cottonwood Creek near the Stringer shearing plant and at the mouth of Gold Creek off Highway 20.
Special Features

All of the WSAs provide outstanding examples of rugged, dissected canyonlands. These impressive canyons dominate the landscape and are of special geologic interest.

The high cliffs and rimrock which dominate much of the Camp Creek and Cottonwood Creek WSAs provide outstanding habitat for raptors and other cliff-dwelling birds. These two WSAs have also been identified as suitable habitat for reintroduction of California bighorn sheep, a Federal candidate for listing under the Endangered Species Act.

Portions of Cottonwood Creek, Camp Creek and the North Fork of Squaw Creek are cold water fisheries which support populations of redband trout, a Federal candidate for listing under the Endangered Species Act. Sage grouse, another Federal candidate for listing, are present in all four WSAs.

The breaks of the Malheur River, in the northern halves of Gold Creek and Sperry Creek WSAs, are crucial winter range for deer and antelope.

Two archeological sites have been identified in the Cottonwood Creek WSA. One appears to have been an intensively used stone tool manufacturing site and possibly a campsite. The other was a quarry for obsidian and dacite.

Cottonwood Creek WSA also contains four paleontological sites that were examined and excavated by crews from the University of Oregon and California Institute of Technology. The crews collected fossil remains of 36 species of small mammals.

Map 6 shows where some of the special features are located.

Diversity in the National Wilderness Preservation System

Based on the Bailey-Khchler method of classifying ecosystems, all of the WSAs are located in the Intermountain Sagebrush Province and have the potential natural vegetation of a sagebrush steppe. Of the major vegetative communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSAs contain big sagebrush/bluebunch wheatgrass and low sagebrush/bluebunch wheatgrass and low sagebrush/Idaho fescue communities.

There are two standard metropolitan statistical areas with populations over 100,000 within five hours' driving time of the WSAs: Boise, Idaho, and Kennewick/Richland/Pasco, Washington.

Energy and Mineral Development

Energy and mineral resources of the four WSAs were evaluated by TERRADATA, under BLM contract. The evaluation was based on general geologic information and geochemical results from a limited number of stream sediment samples. Technical details of the evaluation are incorporated in the TERRADATA report titled "Assessment of Geology, Energy, and Mineral Resources of Lake Owyhee Geologic Resource Area (GRA)." This report was supplemented with additional information from leases, general mineral resource data, and heavy minerals geochemical data from Barringer Resources, Inc., in September 1984.

The WSAs are within the Lake Owyhee GRA which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (level of certainty). A description of the rating system is provided in the Statewide EIS volume.

Table 12 shows the energy and mineral classification for the four WSAs. Map 7 shows where energy and mineral resources have moderate and high potential for occurrence in the WSAs.

Surface geologic material found in the WSAs consists largely of late Tertiary basalt flows, with lesser amounts of rhyolite flows and ash-flow tuffs, and minor tuffaceous lake and stream deposits and quaternary alluvium. No pre-Tertiary rocks are known to be exposed in the WSAs and it is not known what underlies the late Cenozoic volcanic cover. However, Mesozoic and Paleozoic marine sedimentary and volcanic rocks, which crop out to the north in the southern Blue Mountains and dip to the south, may underlie the area.

Energy Resources

Based on indirect evidence, all four WSAs are considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of pre-Tertiary marine sediments at depth. However, there has been no deep drilling in the vicinity that has penetrated the Tertiary cover.
As of October 16, 1987, there were no energy leases within the WSAs.

Mineral Resources

No confirmed mineral deposits have been found in any of the four WSAs. However, optical calcite is found throughout them, with fairly extensive occurrences in Sperry Creek WSA. Therefore, based on this direct evidence, all of the Sperry Creek WSA is considered to have a high potential for the occurrence of optical calcite; the remaining three WSAs (Camp Creek, Cottonwood Creek, and Gold Creek) are considered to have moderate potentials for the occurrence of optical calcite.

Also based on direct evidence, all of the Sperry Creek WSA is considered to have a moderate potential for the occurrence of perlite due to the presence of perlite in the ash flow tuffs and rhyolites found throughout the WSA. Based on indirect evidence, the remaining three WSAs are considered to have moderate potentials for the occurrence of perlite due to the occurrence of ash flow tuffs and rhyolites throughout the WSAs and the inferred presence of perlite.

Based on indirect evidence, approximately 1,900 acres in the northern portion of the Camp Creek WSA and approximately 7,600 acres in the northern portion of the Gold Creek WSA are considered to have moderate potential for the occurrence of gold.

Again based on indirect evidence, all of the Sperry Creek WSA is considered to have a moderate potential for the occurrence of bentonite due to its inferred presence and favorable rocks (ash flow tuffs).

As of October 16, 1987, there were no mining claims in any of the four WSAs.

Utility Corridors

The Malheur River Canyon from Harper to Juntura is a designated multiple use utility/transportation corridor. The corridor, which forms a portion of the northern boundaries of the Gold Creek and Sperry Creek WSAs, contains U.S. Highway 20, railroad tracks, a 69-kv power transmission line, and a telephone line. Idaho Power Company proposes upgrading the powerline to 138-kv within 10 years. The proposed upgrading would use the existing right-of-way and would not require new towers. There are no plans to upgrade the highway, railroad tracks or telephone line.

The existing Pacific Power & Light 500-kv powerline passes within 600 feet of the extreme southern portion of the Camp Creek and Cottonwood Creek WSAs. The Northern Malheur MFP proposes to designate a 2-mile-wide utility corridor, following the same route as the existing powerline, to allow construction of additional lines.

Vegetation

Vegetation throughout all four of the WSAs is characteristic of a sagebrush steppe ecosystem. The large expanses of tableland in Camp Creek and Gold Creek WSAs support low sagebrush/bluebunch wheatgrass or low sagebrush/Idaho fescue communities. These are in mid- to late seral stages in Camp Creek WSA and early to mid-seral stages in Gold Creek WSA. The steep canyons in all four WSAs support a Wyoming big sagebrush/bluebunch wheatgrass community in late seral stage to the potential natural community, due to rugged terrain and inaccessibility to livestock. Where the steepness is moderated and at the slope toes, the Wyoming big sagebrush/bluebunch wheatgrass community is in early to mid- and late seral stages, with the mid-seral stage predominating. About half of the northern portion of Sperry Creek WSA is in early seral stage.

Numerous pockets of riparian vegetation are scattered throughout the canyon bottoms. The longest riparian area is Cottonwood Creek between Camp Creek and Cottonwood Creek WSAs. Small areas along this creek support willow, golden current, rose and herbaceous vegetation composed of sedges and rushes. However, most of the area is a gravel bar supporting various weedy species such as wooly mullein and cheatgrass. Other riparian vegetation in the more inaccessible canyons is a lush mix of bitter cherry, golden current, willow and rose. Scattered on the steep slopes are seeps supporting these same riparian species on 5- to 10-acre patches, particularly in the northern and eastern portions of the Gold Creek WSA.

Numerous herbaceous species are found throughout the WSA and vary considerably by vegetation types. The low sagebrush communities on the tableland are rich in wild onions, violets, daisy fleabanes, phlox, clover and smaller species of buckwheat. Arrowleaf balsamroot, lupine and buckwheats are part of the Wyoming big sagebrush communities. Pockets of giant wildrye also may be found on side slopes in all WSAs.

No threatened or endangered species are known or suspected in the WSAs.
Wildlife

The Camp Creek group of WSAs supplies good quality habitat for approximately 250 mule deer and 50 antelope. Deer and antelope use is relatively light and scattered during the summer period. Severe winters push deer and antelope out of the southern area, north into the breaks of the Malheur River Canyon, which is considered a crucial winter range.

Upland game birds common in the WSAs include California quail, chukar partridge and sage grouse. The numbers and distribution of sage grouse and chukars typify the best habitat in Malheur County, which is a major upland game bird producer in the State.

Cottonwood Creek, Camp Creek and the North Fork of Squaw Creek are cold water fisheries which support self-sustaining populations of redband trout. A road in Cottonwood Creek Canyon reduces the quality of fish habitat due to numerous stream crossings. Redband trout are present in all but the Sperry Creek WSA.

The high cliffs and rock formations, which dominate much of the Camp Creek and Cottonwood Creek WSAs, provide outstanding habitat for raptors and other cliff-dwelling birds. Raptors attracted to the area include golden eagles, prairie falcons, turkey vultures, kestrels, red tailed hawks and great horned owls. Rock doves and kingfishers occur along Cottonwood Creek. Other nongame species present are common and widespread in the intermountain region. The BLM and ODFW both have approved management plans which recognize the Cottonwood Creek drainage as a potential release site for California bighorn sheep. Quality perennial grass forage, inaccessibility to motorized vehicles and relatively good water sources are identified as key wild sheep habitat features available in the area. However, a release could not occur until domestic sheep use is terminated in the Harper grazing allotment. At present there are no plans to terminate domestic sheep use.

The wildlife species composition is largely the same in all four WSAs with the exception of redband trout which do not occur in the Sperry Creek WSA. However, due to variations in the quantities of habitat types present, the relative numbers of key wildlife species vary somewhat among the study areas.

Watershed

The Camp Creek Group has several ephemeral streams and numerous intermittent streams dissecting very steep, faulted terrain. Gold Creek and North Fork Squaw Creek in Gold Creek WSA, and Cottonwood Creek in Cottonwood Creek WSA, are ephemeral streams where water persists in isolated, deep-water pools during the late summer. Other major intermittent streams include Camp Creek and Tims Creek in Camp Creek WSA, and Indian Creek in Sperry Creek WSA. Water quality and bank stability are good in all streams due to the high bank rock content. Riparian vegetation is dense in all streams, except Cottonwood Creek, due to the narrow canyons and rough terrain which make the streams inaccessible to cattle. Cottonwood Creek has a wider floodplain and, although the canyon bottom is rocky, cattle are capable of traversing the area, browsing on woody vegetation such as willow. A road running up the Cottonwood Creek floodplain crosses the creek several times, causing increased siltation and local bank destabilization. Watershed condition in Cottonwood Creek is fair, and is trending upward to good in the pasture grazed only in the spring.

Livestock Grazing

Portions of two grazing allotments lie within the four WSAs. Currently, all public lands in the WSA are leased for livestock grazing. Table 3 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 13 miles of fence, 12 reservoirs and 9 springs.

Livestock operators use motor vehicles on ways approximately 25 to 30 times per year to inspect and maintain fences and reservoirs, check on livestock, spread salt, and move and supply sheep camps. The roads are used 55 to 60 times per year for the same purposes. Due to rugged topography and the lack of vehicular access to parts of the WSA, some of the livestock management is accomplished on horseback.

Recreation Use

Although the WSAs offer excellent opportunities for a variety of recreational activities (see Table 11 for a listing of primitive recreation activities), hunting is currently the most common recreational use. Mule deer, antelope, chukar and quail are all hunted in this area. Hunters mainly use the boundary roads for access along the periphery of the WSAs. Within the
WSAs, ease of hunter movement and shooting opportunities are limited by the rugged terrain. However, these shortcomings are offset by the abundance of animals present.

The WSAs receive very little recreational use by anglers because of the limited number of available fish in the streams.

Use of vehicles is limited by vehicle designation to boundary roads, two dead-end roads totaling 3 miles, and 13 miles of ways. Vehicle use is slight and is usually associated with hunting.

Overall recreation use in the WSAs is estimated to be 1,000 visitor days per year (400 visitor days per year in the Camp Creek and Cottonwood Creek WSAs, 200 in Gold Creek WSA, and fewer than 100 in Sperry Creek WSA).

Local Personal Income

Livestock use at the current level of 5,666 AUMs and recreation use totaling 1,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $67,992 for livestock grazing and $12,000 related to recreation use of the WSA, for an overall total of $79,992. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 47,100 acres. Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

Four individual areas totaling 47,100 acres (19,200 acres in Camp Creek WSA, 8,700 acres in Cottonwood Creek WSA, 13,600 acres in Gold Creek WSA and 5,600 acres in Sperry Creek WSA) would be added to the National Wilderness Preservation System (NWPS). Each of the four WSAs would be designated wilderness, and wilderness values within the 47,100 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features (including redband trout populations, excellent raptor habitat, sage grouse, excellent California bighorn sheep habitat, rugged canyonlands, crucial deer and antelope winter range, archeological sites and paleontological sites) would also be protected.

Naturalness

The naturalness of the four WSAs would be enhanced by prohibiting motorized vehicle use on 13 miles of ways. Presently only seven percent of the area in the WSAs is influenced by internal unnatural features (see Table 10). Closure of the ways which influence approximately 1,470 acres (slightly more than three percent of the WSAs' total area) would improve naturalness by allowing the ways to revegetate. Within three to five growing seasons, natural revegetation would make the ways substantially unnoticeable. Approximately 11 miles of ways may receive periodic use every 5 to 10 years by heavy equipment needed to maintain reservoirs and developed springs. This infrequent use would not prevent revegetation of the ways. Water developments not located on ways would be maintained by cross-country travel, totaling approximately 4 miles. Disturbance to naturalness would be nominal.

A proposed fence, south of Cottonwood Creek Canyon, would likely be allowed because it would enhance wilderness values by protecting natural processes and restoring deteriorated habitat. Constructing 5 miles of fence in Cottonwood Creek WSA and 1 mile of fence in Camp Creek WSA would allow a change in grazing management that would improve riparian vegetation and the natural appearance of 7 miles of Cottonwood Creek. The fence, itself, as an unnatural feature, would influence approximately 250 acres.

Solitude

Opportunities for solitude provided by the WSAs' 50 miles of major drainages and numerous side drainages would be further improved by closing 13 miles of ways to motorized vehicles. Vehicles would be limited
to boundary roads and a 0.5-mile-long dead-end road in Gold Creek WSA. Closure of the ways would especially benefit opportunities for solitude on the tablelands, where most of the ways are located. Because of the flat or gently-rolling terrain on the tablelands, motorized vehicles can be seen over a long distance.

Fence construction activity would temporarily disrupt opportunities for solitude in the Camp Creek and Cottonwood Creek WSAs, as would maintenance activities every 5 to 10 years at 12 reservoirs and nine springs scattered throughout the WSAs.

**Primitive and Unconfined Recreation**

Closure of 13 miles of ways to motorized vehicle use would increase or improve opportunities for primitive and unconfined recreation activities such as hiking, backpacking, horseback riding, camping, wildlife viewing, photography and hunting. Removal of vehicles and rehabilitation of ways would improve the quality of these experiences by providing a more natural, primitive, wild setting.

Construction of 6 miles of fence to better manage livestock grazing would improve riparian vegetation and wildlife habitat along 7 miles of Cottonwood Creek in Camp Creek and Cottonwood Creek WSAs. Increased wildlife viewing opportunities and a more natural setting would enhance recreational experiences.

**Special Features**

Eliminating vehicle use on 13 miles of ways would prevent minor, short-term disturbances of sage grouse and other wildlife species, and would improve scenic quality as revegetation of the ways occurred.

Construction of 6 miles of fence in Camp Creek and Cottonwood Creek WSAs would improve vegetation along 7 miles of Cottonwood Creek by allowing better management of livestock grazing. Redband trout would benefit from improved habitat.

**Conclusion:** Wilderness designation of the four WSAs (totaling 47,100 acres) would protect and enhance existing wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 45,340 acres of public lands within the four WSAs to mineral entry. A total of 1,760 acres of split-estate lands would be open to mineral exploration and development, and a 40-acre private inholding would be open to mineral exploration and development at the landowners' discretion (Refer to Section 2, Description of the Alternatives - All Wilderness, Energy and Mineral Development Actions, for a description of the acres closed to mineral entry in each WSA).

**Energy Development**

Projected exploration for energy resources, including oil and gas, would be precluded on 45,340 acres. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program for oil and gas, only casual exploration without development is postulated for the 1,760 acres of split-estate lands and the 40-acre parcel of private land.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Projected exploration for mineral resources (including optical calcite, perlite, gold and bentonite) would be precluded on 45,340 acres. No development activities have been projected.

Projected exploration for gold and optical calcite (as an indicator of gold) would occur on split-estate lands in the four WSAs. Projected exploration for perlite would occur on split-estate land in Sperry Creek WSA. The discovery of economic deposits is not expected and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration program, only casual exploration without development is postulated for bentonite on the 240-acre split-estate parcel in the Sperry Creek WSA.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Utility Corridor Routing and Development**

The proposed utility corridor south of Camp Creek and Cottonwood Creek WSAs would have little or no space for expansion to the north of the existing PP&L powerline. The Bonneville Power Administration, one of the proponents of this corridor, has indicated this is not a significant problem since the corridor could be expanded to the south of the existing line, adding negligible line length to any future powerline developments.
Conclusion: The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.

Impacts on Vegetation

Little or no change would take place to overall vegetation under this alternative. Thirteen miles of closed ways would revegetate in three to five years. Six miles of new fence would permit better management of livestock in Cottonwood Creek. By deferring this area from grazing on a periodic basis, riparian vegetation would be enhanced along 7 miles of Cottonwood Creek, with an expected increase in willows, rose, golden current, sedges and rushes.

Conclusion: Little or no change would take place to overall vegetation. Improvement of riparian vegetation would occur along 7 miles of Cottonwood Creek. Thirteen miles of ways would revegetate.

Impacts on Wildlife

Wildlife habitat for approximately 250 mule deer, 50 antelope, redband trout, sage grouse, upland game birds, raptors and other nongame species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness policy. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Construction of 6 miles of livestock fence would permit improvement of riparian habitat along 7 miles of Cottonwood Creek. Expected enhancement of woody riparian cover and overall stream stability would result in possible increases in populations of redband trout and mule deer and improvement of their habitats. Nongame wildlife species of small birds and mammals would also benefit from increased canopies of both woody and herbaceous cover.

Vehicle closure on 13 miles of ways would eliminate minor vehicle disturbances of antelope, sage grouse and most species present, and would improve bighorn sheep habitat.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSAs, and enhanced in the vicinity of closed ways and along Cottonwood Creek.

Impacts on Watershed

Under the all wilderness alternative, watershed condition would remain good in all WSAs except Cottonwood Creek WSA where watershed condition would remain fair. The construction of 6 miles of pasture fence would enhance watershed along 7 miles of Cottonwood Creek through better control of livestock grazing. This would allow riparian vegetation to become well-established, resulting in better water quality, bank stability and overall channel conditions. However, the stream crossings of the road along Cottonwood Creek would continue to cause sedimentation and local bank destabilization, resulting in continued overall fair condition of the creek.

Conclusion: Water quality and overall channel conditions would slightly improve in Cottonwood Creek from fencing and would remain good over the rest of the area.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 5,666 AUMs within the portions of the two allotments in the four WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 13 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and slight additional expense to livestock operators. Sheep camps would have to be moved and supplied by horse. Heavy equipment may be used once every 5 to 10 years for maintenance of 12 reservoirs and nine springs. This periodic infrequent use would involve 11 miles of ways and 4 miles of cross-country travel.

The construction of four reservoirs in the Cottonwood Creek WSA, two reservoirs in the Gold Creek WSA, and two springs in Sperry Creek WSA would be precluded, thus foregoing the opportunity to improve livestock distribution.

Five miles of fence in the Cottonwood Creek WSA and 1 mile of fence in the Camp Creek WSA would be constructed to improve riparian vegetation. The fence would allow a change in grazing management to be implemented that would improve riparian vegetation on 7 miles of stream.

Conclusion: Livestock use would remain at 5,666 AUMs. The use of 13 miles of ways for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.
Impacts on Recreation Use

Closing 13 miles of ways to motorized vehicles would eliminate vehicle-based hunting inside the WSAs. This would cause only a slight, initial reduction in recreation use, most of it in Camp Creek WSA, because the rugged terrain makes most areas inaccessible to vehicles.

As the public became aware of the existing wilderness qualities within the WSAs, increases in primitive, non-motorized recreation would surpass the initial reduction from elimination of vehicle use. Overall recreational use of the four WSAs would increase from the current level of approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.

Conclusion: Recreational use of the four WSAs would increase from approximately 1,000 visitor days per year to 1,500 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 5,666 AUMs and overall recreation use would increase by 500 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

Enhanced Wilderness

Recommended suitable for wilderness: 49,340 acres (assuming the 40 acres of private land are acquired)
Recommended unsuitable for wilderness: 0 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would combine the four WSAs (19,200 acres in Camp Creek WSA, 8,700 acres in Cottonwood Creek WSA, 13,600 acres in Gold Creek WSA and 5,600 acres in Sperry Creek WSA) into a single wilderness area and add 49,340 acres to the NWPS, assuming the 40-acre private inholding is acquired as proposed under this alternative. The mineral estate on 1,760 acres of split-estate land would also be acquired, and 2,200 acres of public land in Simmons Gulch would be added to Gold Creek WSA. All roads would be closed, including 13 miles of roads between the WSAs, a 0.5-mile-long dead-end road in Gold Creek WSA, and a 2.5-mile-long dead-end road in Simmons Gulch. In addition, 13 miles of ways would be closed.

The entire combined area of the four WSAs would be designated wilderness, and wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including redband trout populations, excellent raptor habitat, sage grouse, excellent bighorn sheep habitat, rugged canyonlands, crucial deer and antelope winter range, and archeological and paleontological sites would also be protected.

Naturalness

The enhanced wilderness alternative would provide the greatest degree of protection and enhancement of the WSAs' naturalness. Closure of three roads totaling 13 miles between the WSAs, two dead-end roads in Gold Creek WSA totaling 3 miles, and 13 miles of ways would remove the impact of these features on naturalness. The greatest benefit would occur in Cottonwood Creek Canyon, the most impressive canyon in the combined WSAs. The 8-mile-long road through the canyon can be seen over a large area which includes the high slopes on both sides of Cottonwood Creek in Camp Creek and Cottonwood Creek WSAs. In a number of places, the road crosses Cottonwood Creek or follows the creek bed, damages riparian vegetation, and contributes to bank erosion and stream sedimentation. These impacts would be eliminated by road closure. Spring washouts would quickly remove evidence of the road along Cottonwood Creek. Where the road crosses higher ground, natural revegetation would make it substantially unnoticeable after three to five growing seasons. Natural revegetation would also make the road between Gold Creek and Sperry Creek WSAs, the road between Gold Creek and Camp Creek WSAs, the two dead-end roads in Gold Creek WSA, and 13 miles of ways substantially unnoticeable after three to five growing seasons. On both the road between Cottonwood Creek and Camp Creek WSAs, and the road between Gold Creek and Sperry Creek WSAs there are short sections with road cuts which would have a more long-term visual influence on naturalness.

Approximately 11 miles of ways and 16 miles of roads may receive periodic use every 5 to 10 years by heavy equipment needed to maintain reservoirs and developed springs. This infrequent use would not prevent revegetation of the roads and ways. Water
developments not located on roads or ways would be maintained by cross-country travel totaling approximately 4 miles. Disturbance to naturalness would be nominal.

Acquisition of the 40-acre private inholding and the mineral estate of 1,760 acres of split-estate land would preclude approximately 4.5 acres of short-term, localized surface disturbance from projected mineral exploration.

Construction of 6 miles of new fence would have the same impact as under the all wilderness alternative. It would improve the riparian vegetation and natural appearance of 7 miles of Cottonwood Creek, but add the unnatural feature of the fence, influencing about 250 acres.

Solitude

Closing 13 miles of roads between WSA, two dead-end roads totaling 3 miles, and 13 miles of ways, and combining the four WSAs into a single wilderness area would improve opportunities for solitude by providing two large core areas free from motor vehicle disturbances. The large northern and southern portions of the wilderness area would be connected by a 1.5-mile-wide area of level tableland. Visitors passing between the northern and southern portions would be clearly visible to one another while crossing this tableland. However, the impact on a visitor's ability to find solitude would be small since it requires only 20 to 30 minutes to cross the tableland and re-enter terrain with better topographic screening. Cottonwood Creek Canyon, between the Camp Creek and Cottonwood Creek WSAs, would benefit most from closure of the roads between WSAs because this rugged canyon would receive the highest amount of visitor use in the combined wilderness area. Visitors to the canyon would no longer need to be concerned about the possibility of motor vehicles disturbing their solitude.

Acquisition of the 40-acre private inholding and 1,760 acres of mineral estate would enhance opportunities for solitude by preventing short-term disturbances from activities associated with projected exploration for mineral resources.

Adding 2,200 acres in Simmons Gulch to Gold Creek WSA would enhance opportunities for solitude by providing a more rounded configuration for this WSA. Simmons Gulch itself has enough topographic screening to provide opportunities for solitude.

Fence construction activity would temporarily disrupt opportunities for solitude in the Camp Creek and Cottonwood Creek WSAs, as would maintenance activities every 5 to 10 years at 12 reservoirs and nine springs scattered throughout the WSAs.

Primitive and Unconfined Recreation

Closing 16 miles of roads and 13 miles of ways and combining the four WSAs into a single wilderness area would increase or improve opportunities for primitive and unconfined recreation activities such as hiking, backpacking, horseback riding, camping, wildlife viewing, photography and hunting. Removal of vehicles, and rehabilitation of the roads and ways would improve the quality of these experiences by providing a more natural, primitive, wild setting. Combination of the WSAs would especially enhance activities such as backpacking and horseback riding by providing an extensive natural area, free from motor vehicle disturbances, in which to roam. Activities such as photography, wildlife viewing and hunting which are dependent on healthy populations of wildlife and undisturbed habitat would also benefit from the increased protection provided by combining the WSAs.

Acquisition of the 40-acre private inholding and 1,760 acres of mineral estate would enhance opportunities for primitive and unconfined recreation by preventing short-term disturbances associated with projected mineral exploration.

Adding 2,200 acres in Simmons Gulch to Gold Creek WSA would enhance primitive and unconfined recreation in this WSA by increasing the acreage available for primitive recreation, and by providing a larger core area, uninfluenced by outside unnatural features.

Construction of 6 miles of fence would have the same impact as under the all wilderness alternative. Improved riparian vegetation and wildlife habitat along 7 miles of Cottonwood Creek would enhance recreational experiences by providing a more natural setting and increased wildlife viewing opportunities.

Special Features

Closing 16 miles of roads would contribute to wildlife freedom from human interaction and be especially beneficial in Cottonwood Creek Canyon. In this canyon, redband trout habitat would be improved by a reduction in stream sediment loads. Bighorn sheep habitat would also be improved by eliminating vehicle disturbances from a major watering area. Scenic quality would be enhanced in the canyon and throughout the combined wilderness area as natural revegetation and washouts erased evidence of the roads. Closing 13 miles of ways to vehicle use would
provide benefits similar to those of road closures: wildlife would be protected from minor short-term disturbances and scenic quality would improve as revegetation of the ways occurred.

Acquiring the 40-acre private inholding and 1,760 acres of mineral estate would prevent the short-term, localized disturbance of wildlife caused by projected mineral exploration activities. The acquisitions and closure of the entire 49,340 acres in the combined wilderness area to mineral exploration would also prevent possible disturbances of archeological and paleontological sites.

Construction of 6 miles of fence in Camp Creek and Cottonwood Creek WSAs would have the same impact as under the all wilderness alternative. Riparian vegetation and redband trout habitat along 7 miles of Cottonwood Creek would be improved.

**Conclusion:** Wilderness designation of 49,340 acres would protect and enhance existing wilderness values within the designated area.

### Impacts on Energy and Mineral Development

Wilderness designation would close 49,340 acres to mineral entry (45,340 acres of public land in the four WSAs, 2,200 acres of non-WSA public land, 1,760 acres of acquired mineral estate on split-estate land, and an acquired 40-acre private inholding). Refer to Section 2, Description of the Alternatives - Enhanced Wilderness, Energy and Mineral Development Actions, for a description of the acres closed to mineral entry in each WSA.

**Energy Development**

Projected exploration for energy resources, including oil and gas, would be precluded on 49,340 acres. No development of the oil and gas resources has been projected.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Projected exploration for mineral resources, including optical calcite, perlite, gold and bentonite, would be precluded on 49,340 acres. No mineral development activities are projected.

**Conclusion:** No impact on mineral development is expected.

### Impacts on Utility Corridor Routing and Development

The proposed utility corridor south of Camp Creek and Cottonwood Creek WSAs would have little or no space for expansion to the north of the existing P&L powerline. The Bonneville Power Administration, one of the proponents of this corridor, has indicated that this restriction would not be a significant problem since the corridor could be expanded to the south of the existing line, adding negligible line length to any future powerline developments.

**Conclusion:** The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.

### Impacts on Vegetation

Thirteen miles of ways and 16 miles of roads closed to vehicles would revegetate within three to five growing seasons. Construction of 6 miles of new fence would improve riparian vegetation along 7 miles of Cottonwood Creek, the same as under the all wilderness alternative. Closure of the road through Cottonwood Creek Canyon would further enhance riparian vegetation by eliminating vehicle disturbances in this area. Acquisition of 1,760 acres of mineral estate and a 40-acre private inholding would prevent vegetative disturbance on 4.5 acres from projected mineral exploration activities. Little or no change would take place to vegetative composition or ecological status over the rest of the WSA because continued grazing would maintain current conditions.

**Conclusion:** Riparian vegetation would be improved along 7 miles of Cottonwood Creek. Thirteen miles of ways and 16 miles of roads would revegetate. Little or no change would occur to vegetation over the rest of the area.

### Impacts on Wildlife

Wildlife habitat for approximately 250 mule deer, 50 antelope, redband trout, sage grouse, upland game birds, raptors and other nongame species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness policy. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Temporary disturbances of mule deer, antelope, sage grouse and raptors resulting from projected mineral
exploration on split-estate land would be avoided as a result of mineral estate acquisitions. Temporary displacement and habitat losses for these, and other, game and nongame species from construction of 3.25 miles of road and a total surface disturbance of 4.5 acres would be prevented.

Construction of 6 miles of livestock fence would permit improvement of riparian habitat along 7 miles of Cottonwood Creek. Expected enhancement of woody riparian cover and overall stream stability would result in possible increases in populations of redband trout and mule deer and improvement of their habitats. Nongame wildlife species of small birds and mammals would also benefit from increased canopies of both woody and herbaceous cover.

Vehicle closure on 13 miles of ways would eliminate minor vehicle disturbances of antelope, sage grouse and most species present, and would improve bighorn sheep habitat. Closure of 16 miles of roads would further contribute to wildlife freedom from human interaction and be highly beneficial in the Cottonwood Creek Canyon for bighorn sheep habitat, chukar partridge, mule deer and redband trout. Redband trout habitat would be improved since vehicle crossings which increase stream sediment loads would be eliminated. Chukar partridge hunting would be greatly reduced with the elimination of vehicle access. Vehicle disturbances would be eliminated from a major watering area in bighorn sheep habitat.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSAs and enhanced in the vicinity of closed ways and roads and also along Cottonwood Creek.

Impacts on Watershed

Under the enhanced wilderness alternative, watershed condition would remain good in all WSAs except Cottonwood Creek WSA where watershed condition would improve from fair to good condition. Closure of the road in the floodplain of Cottonwood Creek and the construction of the 6 miles of pasture fence would enhance watershed along 7 miles of Cottonwood Creek by eliminating stream crossings by vehicles and allowing better control of livestock grazing. This would reduce sedimentation and allow riparian vegetation to become well-established, resulting in better water quality, bank stability and overall channel conditions.

Conclusion: Water quality and overall channel conditions would improve from fair to good on Cottonwood Creek and would remain good over the rest of the area designated as wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 5,666 AUMs within the portions of the two allotments in the four WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 13 miles of ways and 16 miles of roads would be precluded under wilderness designation. This would result in some inconvenience and slight additional expense to livestock operators. Sheep camps would have to be moved and supplied by horse. Heavy equipment may be used once every 5 to 10 years for maintenance of 12 reservoirs and nine springs. This periodic infrequent use would involve 11 miles of ways, 16 miles of roads and 4 miles of cross-country travel.

The construction of two reservoirs in the Gold Creek WSA, four reservoirs in the Cottonwood Creek WSA and two springs in Sperry Creek WSA would be precluded, thus foregoing the opportunity to improve livestock distribution.

Five miles of fence in the Cottonwood Creek WSA and 1 mile of fence in the Camp Creek WSA would be constructed to improve riparian vegetation. The fence would allow a change in grazing management to be implemented that would improve riparian vegetation on 7 miles of stream.

Conclusion: Livestock use would remain at 5,666 AUMs. The use of 13 miles of ways and 16 miles of roads for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.

Impacts on Recreation Use

Closing 16 miles of roads and 13 miles of ways to motorized vehicles would cause a slight reduction in recreation use. The visitors most affected by road and way closures would be vehicle-based deer and chukar hunters in Cottonwood Creek Canyon and sightseers on the Camp Creek WSA’s northern tablelands.

Acquisition of the 40-acre private inholding and 1,760 acres of mineral estate would prevent short-term disturbances of recreational experiences from projected mineral exploration activities, but would have little impact on recreation use levels. The addition of 2,200 acres in Simmons Gulch to Gold Creek WSA would enhance recreational opportunities by providing
a larger core area free from outside disturbances. Simmons Gulch would also provide an attractive travel corridor to the core area, so recreation use in this area would probably increase.

Combining the WSAs and closing the roads between them would provide a large area, undisturbed by vehicles, where wilderness values and special features would receive protection. Because of these benefits, the combined wilderness area would be more attractive to primitive recreationists than four individual wilderness areas. Growth of primitive recreational use would more than offset the slight reduction resulting from road and way closures. Overall recreational use of the four combined WSAs would increase from approximately 1,000 visitor days per year to approximately 1,700 visitor days per year as the public became aware of the existing wilderness qualities within the combined wilderness area.

**Conclusion:** Recreational use of the combined wilderness area would increase from approximately 1,000 visitor days per year to approximately 1,700 visitor days per year.

### Impacts on Local Personal Income

Livestock grazing would remain at 5,666 AUMs and overall recreation use would increase by 700 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $8,400 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $8,000.

### Partial Wilderness (Proposed Action)

Recommended suitable for wilderness: 46,870 acres
Recommended nonsuitable for wilderness: 2,430 acres

### Impacts on Wilderness Values

Under the partial wilderness alternative, the entire areas of Gold Creek WSA (13,600 acres) and Sperry Creek WSA (5,600 acres) would be combined, and portions of Camp Creek WSA (17,770 acres) and Cottonwood Creek WSA (7,700 acres) would also be combined. Each combined area would be managed as a single wilderness area. The mineral estate of 1,760 acres of split-estate land would be acquired, and 2,200 acres of public land in Simmons Gulch would be added to Gold Creek WSA. A 1-mile-long road between the two combined areas would remain open. Four miles of road between Gold Creek WSA and Sperry Creek WSA, 6 miles of road between Camp Creek WSA and Cottonwood Creek WSA, two dead-end roads totaling 3 miles in Gold Creek WSA, and 12 miles of ways would be closed.

A total of 46,870 acres (21,400 acres in the Gold Creek/Sperry Creek combination, and 25,470 acres in the Camp Creek/Cottonwood Creek combination) would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including redband trout, sage grouse, excellent raptor habitat, bighorn sheep habitat, crucial deer and antelope winter range, rugged canyonlands, and archeological and paleontological sites would also be protected.

A total of 2,430 acres (1,430 acres in Camp Creek WSA, and 1,000 acres in Cottonwood Creek WSA) would not be designated wilderness, and wilderness values would not receive special legislative protection. Wilderness values on 1,000 acres of tablelands and 1,430 acres of canyonlands would be subject to the effects of the projected management actions.

### Naturalness

The effects on naturalness would be very similar to the enhanced wilderness alternative except that under the partial wilderness alternative the wilderness values of 2,430 acres would be excluded from legislative protection, and the 1-mile-long road between Gold Creek and Camp Creek WSAs would remain open. Exclusion of 1,430 acres in the southern portion of Camp Creek WSA from wilderness designation would also permit 2 miles of road leading to the private inholding between Camp Creek and Cottonwood Creek WSAs and a 1-mile-long way leading from the private inholding to the private land at the western boundary of Camp Creek WSA to remain open. These routes would form the new southwestern boundary of the Camp Creek/Cottonwood Creek combination area.

Ten miles of road between the WSAs, two dead-end roads in Gold Creek WSA totaling 3 miles, and 12 miles of ways would be closed to motorized vehicles. Within three to five growing seasons, natural revegetation would make these roads and ways substantially unnoticeable, except on short sections of the road.
between Gold Creek and Sperry Creek WSAs, and the road between Camp Creek and Cottonwood Creek WSAs where roadcuts would have a more long-term visual influence on naturalness. As under the enhanced wilderness alternative, Cottonwood Creek Canyon would benefit the most from road closure. Removal of motorized vehicles would prevent damage to riparian vegetation and wildlife habitat, reduce bank erosion and stream sedimentation, and permit revegetation and washouts to eliminate the road’s extensive unnatural influence from the canyon. Allowing the road between Gold Creek and Camp Creek WSAs to remain open would have little impact on naturalness because the road crosses level terrain and is noticeable only when the viewer is within 50 to 100 feet. The 2-mile-long road and 1-mile-long way that would remain open in the southern portion of Camp Creek WSA both follow drainages. Vehicle use on these routes would continue to contribute to erosion and stream siltation, which affect naturalness within the designated wilderness.

Approximately 11 miles of ways and 13 miles of roads may receive periodic use every 5 to 10 years by heavy equipment needed to maintain reservoirs and developed springs. This infrequent use would not prevent revegetation of the ways and roads. Water developments not located on roads or ways would be maintained by cross-country travel totaling approximately 4 miles. Disturbance to naturalness would be nominal.

Mineral exploration activities on the 2,430 acres recommended as nonsuitable would cause three acres of surface disturbance and have a short-term adverse influence on naturalness. No mineral development is expected, so there would be no long-term impact. Acquisition of 1,760 acres of mineral estate within the suitable area would prevent the short-term influence of surface disturbance on 4.5 acres from projected mineral exploration there.

Construction of 6 miles of new fence would have the same impact as under the other alternatives. It would improve the riparian vegetation and natural appearance of 7 miles of Cottonwood Creek, but add the unnatural feature of the fence, influencing about 250 acres.

Sostitude

The effects on solitude under this alternative would be very similar to the enhanced wilderness alternative. The partial wilderness alternative would provide two large core areas with abundant topographical screening, numerous travel corridors, and freedom from vehicle disturbances. A mile-long road between the two areas would remain open but would have only a small impact on solitude because it crosses a level tableland where few opportunities for solitude currently exist. It would take a visitor only 20 to 30 minutes to cross the road’s influence zone and re-enter terrain with better topographic screening.

As in the enhanced wilderness alternative, Cottonwood Creek Canyon, the area that would receive the greatest visitor use, would benefit most from road closures by removing vehicle use disturbances from this canyon.

The acquisition of 1,760 acres of mineral estate would also have the same impact as under the enhanced wilderness alternative. Opportunities for solitude would be enhanced by preventing short-term disturbances associated with projected mineral exploration activities.

As in the enhanced wilderness alternative, adding 2,200 acres of public land in Simmons Gulch to Gold Creek WSA would provide this WSA with a better configuration and more opportunities for solitude.

Fence construction activity would temporarily disrupt opportunities for solitude in the Camp Creek and Cottonwood Creek WSAs, as would maintenance activities every 5 to 10 years at 12 reservoirs and nine springs scattered throughout the WSAs.

Within the 2,430 acres recommended nonsuitable as wilderness, mineral exploration activities at seven projected drill sites would cause temporary impairment of opportunities for solitude in areas adjacent to exploration sites and their access roads. Continued vehicle use on 2 miles of existing road and a mile of existing way in the nonsuitable portion of Camp Creek WSA would maintain occasional vehicle disturbances of solitude along these routes.

Primitive and Unconfined Recreation

Most of the effects on primitive recreation opportunities resulting from closure of roads and ways, construction of 6 miles of fence, addition of 2,200 acres to Gold Creek WSA, and acquisition of 1,760 acres of mineral estate, as identified in the enhanced wilderness alternative, would occur under this alternative. However, the partial wilderness alternative excludes 2,430 acres from wilderness designation.

Within the 2,430 acres recommended nonsuitable as wilderness, mineral exploration would cause temporary, local impairment of opportunities for primitive and unconfined recreation because noise, three acres of surface disturbance and vehicle use of access
roads would disturb the natural, primitive setting. Continued vehicle use on 2 miles of existing road and 1-mile of existing way in the nonsuitable portion of Camp Creek WSA would maintain occasional vehicle intrusions on primitive, non-motorized recreation along these routes.

Special Features

The effect of this alternative on special features is very similar to the effect of the enhanced wilderness alternative. However, this alternative excludes 2,430 acres from wilderness designation.

Closing 13 miles of roads and 12 miles of ways would contribute to wildlife freedom from human interaction. Closures would be especially beneficial in Cottonwood Creek Canyon where redband trout and bighorn sheep habitat would be improved by eliminating vehicle disturbances of wildlife and by reducing erosion and stream siltation from vehicle stream crossings. Scenic quality would also be enhanced in this canyon and throughout the suitable portions of the WSAs as natural revegetation removed the influence of roads and ways.

Acquisition of 1,760 acres of mineral estate would prevent short-term disturbance of wildlife caused by projected mineral exploration. This acquisition and the closure of 46,870 acres to mineral exploration would also prevent possible disturbances of archeological and paleontological sites.

Construction of 6 miles of fence in Camp Creek and Cottonwood Creek WSAs would have the same impact as under the other alternatives. Riparian vegetation and redband trout habitat along 7 miles of Cottonwood Creek would be improved.

Projected mineral exploration within the 2,430 acres recommended nonsuitable as wilderness would cause short-term displacement of wildlife in both areas, but wildlife would reoccupy habitat once exploration efforts ceased.

Conclusion: Wilderness designation of 46,870 acres would protect and enhance existing wilderness values within the designated area. Within the 2,430 acres recommended as nonsuitable for wilderness designation, projected activities would cause short-term impairment of wilderness values over approximately three acres, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

Wilderness designation would close 42,910 acres of public land in the four WSAs and 2,200 acres of non-WSA public land (which would be included in wilderness) to mineral entry. Assuming acquisitions were successful, 1,760 acres of mineral estate on split-estate lands would also be closed to mineral entry. A total of 2,430 acres of public land recommended nonsuitable for wilderness would be open to mineral entry (1,430 acres in the Camp Creek WSA and 1,000 acres in the Cottonwood Creek WSA). In addition, a 40-acre parcel of private land surrounded by WSA would be open to mineral exploration and development at the landowners’ discretion. Refer to Section 2, Description of the Alternatives - Partial Wilderness, Energy and Mineral Development Actions, for a description of the acres closed to mineral entry and those available for exploration and development in each WSA.

Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 46,870 acres. Due to a lack of sufficient geologic evidence to justify an extensive exploration program for oil and gas on the 2,430 acres of nonsuitable public land, only casual exploration, without development, is postulated.

Conclusion: No impact on energy development is expected.

Mineral Development

Exploration for mineral resources (including optical calcite, perlite, gold and bentonite) would be precluded on 46,870 acres. No development has been projected.

Projected exploration for optical calcite/gold on the 2,430 acres recommended nonsuitable in the Camp Creek and Cottonwood Creek WSAs would occur. The discovery of economic deposits is not expected and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development effort for perlite in the 2,430 acres recommended nonsuitable in the Cottonwood Creek and Camp Creek WSAs, only casual exploration without development is postulated.

Conclusion: No impact on mineral development is expected.
Impacts on Utility Corridor Routing and Development

The proposed utility corridor south of Camp Creek and Cottonwood Creek WSAs would have little or no space for expansion to the north of the existing PP&L powerline. The Bonneville Power Administration, one of the proponents of this corridor, has indicated that this restriction would not be a significant problem since the corridor could be expanded to the south of the existing line, adding negligible line length to any future powerline development.

Conclusion: The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.

Impacts on Vegetation

Little or no change would take place to overall vegetation under the partial wilderness alternative. Projected mineral exploration in the portion recommended nonsuitable as wilderness, involving seven drill sites and 2 miles of temporary road construction, would remove vegetation on three acres. Revegetation of disturbed sites would occur within approximately three to five years after cessation of exploration activities. Twelve miles of ways and 13 miles of roads would be closed and would revegetate in three to five years. Six miles of new fence would permit better management of livestock in Cottonwood Creek. Periodic deferment of grazing in this area would enhance riparian vegetation with an expected increase in willows, rose, golden current, sedges and rushes.

Conclusion: Little or no change would take place to overall vegetation. Riparian vegetation would improve along 7 miles of stream. Twelve miles of ways and 13 miles of roads would revegetate. Short-term removal of vegetation would occur on three acres from projected mineral exploration activities on land recommended nonsuitable as wilderness.

Impacts on Wildlife

Wildlife habitat for approximately 250 mule deer, 50 antelope, redband trout, sage grouse, upland game birds, raptors and other nongame species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. In the area recommended suitable as wilderness, habitat would also be managed in a manner consistent with BLM wilderness policy. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Construction of 6 miles of livestock fence would permit improvement of riparian habitat along 7 miles of Cottonwood Creek. Expected enhancement of woody riparian cover and overall stream stability would result in possible increases in populations of redband trout and mule deer and improvement of their habitats. Nongame wildlife species of small birds and mammals would also benefit from increased canopies of both woody and herbaceous cover.

Vehicle closure on 12 miles of ways would eliminate minor vehicle disturbances of antelope, sage grouse and most species present, and would improve bighorn sheep habitat. Closure of 13 miles of roads would further contribute to wildlife freedom from human interaction and be highly beneficial in the Cottonwood Creek Canyon for bighorn sheep habitat, chukar partridge, mule deer and redband trout. Redband trout habitat would be improved since vehicle crossings which increase stream sediment loads would be eliminated. Chukar partridge hunting would be greatly reduced with the elimination of vehicle access. Vehicle disturbances would be eliminated from a major watering area in bighorn sheep habitat.

Activity related to minerals exploration on areas recommended nonsuitable as wilderness would cause minor and temporary wildlife displacement and habitat losses for game and nongame species with construction of 2 miles of new road and three acres of surface disturbance. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities ceased, habitat was rehabilitated and roads constructed for exploration were closed.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSAs and enhanced in the vicinity of closed ways and roads also along Cottonwood Creek.

Impacts on Watershed

Under the partial wilderness alternative, watershed conditions would remain good in all WSAs except Cottonwood Creek WSA where watershed condition would improve from fair to good. Closure of the road in the floodplain of Cottonwood Creek and the construction of the 6 miles of pasture fence would enhance watershed in Cottonwood Creek WSA. In the nonsuitable portion of the study area, one acre of surface disturbance from mineral exploration activities in tributary watersheds to Cottonwood Creek would cause minor, short-term, increased siltation of this stream.
Conclusion: Water quality and overall channel conditions would improve from fair to good on Cottonwood Creek and would remain good over the rest of the area designated as wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 5,666 AUMs within the portions of the two allotments in the four WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 12 miles of ways and 13 miles of roads would be precluded under wilderness designation. This would result in some inconvenience and slight additional expense to livestock operators. Sheep camps would have to be moved and supplied by horse. Heavy equipment may be used once every 5 to 10 years for maintenance of 12 reservoirs and nine springs. This periodic infrequent use would involve 11 miles of ways, 13 miles of roads and 4 miles of cross-country travel. In the nonsuitable portion of the study area, 1 mile of way and 3 miles of road would remain open to vehicle use.

The construction of two reservoirs in the Gold Creek WSA, four reservoirs in the Cottonwood Creek WSA, and two springs in Sperry Creek WSA would be precluded, thereby foregoing the opportunity to improve livestock distribution.

Five miles of fence in the Cottonwood Creek WSA and 1 mile of fence in the Camp Creek WSA would be constructed to improve riparian vegetation. The fence would allow a change in grazing management to be implemented that would improve riparian vegetation on 7 miles of stream.

Conclusion: Livestock use would remain at 5,666 AUMs. The use of 12 miles of ways and 13 miles of roads for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.

Impacts on Recreation Use

Closing 13 miles of road and 12 miles of ways to motorized vehicles would cause a slight reduction in recreation use. Vehicle-based hunters in Cottonwood Creek Canyon and sightseers on Camp Creek WSA's northern tablelands would be the visitors most affected by road and way closures.

Continued vehicle use of the 1-mile-long road between Camp Creek and Gold Creek WSAs would occur under this alternative. By remaining open, the road would encourage day hikers in Gold Creek WSA's North Fork Squaw Creek drainage and Camp Creek WSA's Wildcat Canyon.

Acquisition of 1,760 acres of mineral estate would prevent short-term disturbances of recreational experiences, but would have little impact on recreation use levels. The addition of 2,200 acres to Gold Creek WSA would have the same impact as in the enhanced wilderness alternative. Recreational opportunities would be enhanced by providing a larger core area free from outside disturbances. Simmons Gulch would also provide an attractive travel corridor to the core area, so recreational use in this area would probably increase.

The benefits of closing the roads between Sperry Creek and Gold Creek WSAs, and Camp Creek and Cottonwood Creek WSAs, and of forming two separate but combined wilderness areas, would be very similar to the benefits of combining all four WSAs in the enhanced wilderness alternative. The formation of two large core areas free from motorized vehicle disturbances, and the increased protection of wilderness values and special features, would be more attractive to primitive recreationists than the designation of four smaller, individual wilderness areas.

Increases in primitive, non-motorized recreational use would more than offset the slight reduction in recreation use levels resulting from road and way closures. Overall recreational use of the WSAs would increase from approximately 1,000 visitor days per year to approximately 1,700 visitor days per year as the public became aware of the existing wilderness qualities within the two combined wilderness areas.

Within the 2,430 acres recommended nonsuitable as wilderness, vehicle-based hunting and recreation would continue on 2 miles of road and 1 mile of way. Recreation use would continue at the current level of fewer than 100 visitor days per year.

Conclusion: Within the area recommended suitable as wilderness, recreational use would increase from approximately 1,000 visitor days per year to approximately 1,700 visitor days per year. Within the area recommended nonsuitable as wilderness, recreation use would remain at the current level of fewer than 100 visitor days per year.
Impacts on Local Personal Income

Livestock grazing would remain at 5,666 AUMs and overall recreation use would increase by 700 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $8,400 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $8,000.

No Wilderness/No Action

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 47,100 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 47,100 acres contained in the four WSAs (19,200 acres in Camp Creek WSA, 8,700 acres in Cottonwood Creek WSA, 13,600 acres in Gold Creek WSA and 5,600 acres in Sperry Creek WSA) would not be designated wilderness, and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area’s special features including rugged canyonlands, sage grouse, redband trout, bighorn sheep habitat, excellent raptor habitat, crucial deer and antelope winter range, and cultural and paleontological sites would be subject to the effects of the projected management actions. Projected actions include mineral exploration, construction of 6 miles of fence, development of six reservoirs and two springs, continued vehicle use for livestock management and facility maintenance/inspection, and continued recreational vehicle use limited to existing roads and ways.

Naturalness

Continued vehicle use of 13 miles of ways and a 0.5-mile-long dead-end road would maintain the impact of vehicle tracks upon naturalness on approximately 1,540 acres (slightly more than three percent of the total area). Roads between WSAs would continue to influence naturalness inside the WSAs. The road in Cottonwood Canyon, between the Camp Creek and Cottonwood Creek WSAs, has the greatest influence, affecting approximately 1,345 acres (slightly less than five percent of these two WSAs).

Mineral exploration would cause 42 acres of short-term, localized surface disturbance (exploration pits and access roads). Reclamation and natural revegetation following exploration would leave little evidence of disturbance to naturalness. No mineral development is projected, so no long-term impacts are anticipated.

The construction of 6 miles of fence would improve riparian vegetation and the natural appearance of 7 miles of Cottonwood Creek, but add the unnatural feature of the fence, influencing approximately 250 acres.

Development of six reservoirs (four in Cottonwood Creek WSA, and two in Gold Creek WSA) and two springs (in Sperry Creek WSA) would cause approximately 14 acres of surface disturbance and have a visual influence on the naturalness of approximately 550 acres.

Any powerline development within the portion of the corridor within the WSA (0.5 mile) would visually influence naturalness on approximately 150 acres beyond the area currently influenced by the existing line within the corridor.

Solitude

Continued vehicle use on 13 miles of ways, a 0.5-mile-long dead-end road in Gold Creek WSA, and roads between WSAs would continue to impair opportunities for solitude in the vicinity of the roads and ways. The greatest impact of vehicle use on solitude is in Cottonwood Creek Canyon which is expected to be the area most used by recreationists.

Temporary disruption of opportunities for solitude would occur from construction of the proposed fence, reservoirs and springs in areas adjacent to these improvements. Temporary disruptions would also occur during maintenance activities associated with existing reservoirs and springs every 5 to 10 years.

Human activity associated with mineral exploration would cause short-term, local impairment of solitude opportunities adjacent to the activity.

Primitive and Unconfined Recreation

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation in the vicinity of 13 miles of ways, 13 miles of roads between the WSAs, and a 0.5-mile-long dead-end road in Gold Creek WSA.
Development of six reservoirs (four in Cottonwood Creek WSA, and two in Gold Creek WSA), and two springs in Sperry Creek WSA would provide additional water sources for recreationists, but would probably have little impact on primitive recreation opportunities because adequate water is already available in the areas recreationists would use most.

Construction of 6 miles of fence would improve riparian vegetation and wildlife habitat along 7 miles of Cottonwood Creek. Increased wildlife viewing opportunities and a more natural setting would enhance recreational experiences, the same as in the other alternatives.

Mineral exploration would occur on 71 sites scattered throughout the WSAs. Noise and visual distractions associated with these activities would cause local, short-term disturbance to primitive and unconfined recreation experiences. Because exploration activities would be spread over a relatively long period of time and not occur all at once, the impact on recreation would be minor.

Special Features

Continued vehicle use on ways and roads would maintain impacts on special features. These impacts include short-term disturbance of sage grouse and other wildlife species, sitation of Cottonwood Creek, deterioration of redband trout and bighorn sheep habitat, and impairment of scenic vistas.

Projected mineral exploration would cause short-term, localized displacement of most wildlife species, but once exploration activities ceased, wildlife would reoccupy the sites. Mineral exploration might disturb possible archeological and paleontological sites; however, monitoring and mitigation measures would either avoid or minimize impacts.

Construction of 6 miles of fence would have the same impact as under the other alternatives. Riparian vegetation and wildlife habitat, including redband trout habitat, would improve along 7 miles of Cottonwood Creek.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values in the short term over 1,000 acres (approximately two percent) of the four WSAs, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

All of the 47,100 acres in the four WSAs would be open to mineral exploration and development. (Refer to Section 2, Description of the Alternatives - No Wilderness/No Action, Energy and Mineral Development Actions, for a description of the acres open to mineral entry in each WSA).

Energy Development

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration without development is postulated for oil and gas.

Conclusion: There would be no impact on energy development.

Mineral Development

Projected exploration for optical calcite (and associated gold) would occur throughout the four WSAs, involving the drilling of 69 core holes. The discovery of economic deposits is not expected and no development is projected. Refer to Table 7 for a description of projected exploration in the individual WSAs under this alternative.

Projected exploration for perlite would occur in the Sperry Creek WSA, involving the digging of two bulk sample trenches/pits. The discovery of an economically mineable deposit is not expected and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program for bentonite, only casual exploration without development is projected.

Conclusion: There would be no impact on mineral development.

Impacts on Utility Corridor Routing and Development

The proposed utility corridor south of Camp Creek and Cottonwood Creek WSAs would be designated as originally proposed along 0.5 mile of the southern edge of Cottonwood Creek and Camp Creek WSAs. The lands within the 2-mile-wide corridor would be available for any needed future powerline development.
Conclusion: There would be no impact on the proposed utility corridor.

Impacts on Vegetation

Little or no change would take place to vegetative composition or ecological status over most of the study area; however, vegetation at numerous local sites would be temporarily disturbed. Projected mineral exploration activity throughout the area would result in 42 acres of surface disturbance, spread over 71 test sites, all of which would revegetate within three to five years after cessation of mineral exploration.

Construction of six reservoirs and development of two springs would directly disturb vegetation on 14 acres. Congregation of livestock around the reservoir and watering locations may impact vegetative composition, depending on seasons of use and intensities, on an additional 100 to 120 acres. Utilization of key forage grass species around such waters may be as high as 80 or 90 percent causing a decrease in perennial grass species and an increase in annual grass species. Other areas in the WSA would receive less use as distribution of livestock would be improved as a result of the eight additional watering locations. Construction of 6 miles of new fence would permit better management of livestock in Cottonwood Creek, resulting in improved riparian vegetation along 7 miles of stream.

Conclusion: Little or no change would occur to vegetation over most of the study area. Short-term removal of vegetation would occur on 42 acres from projected mineral exploration activities. Long-term removal would occur on 14 acres from range projects, with changes in vegetative composition and an increase in utilization level on 120 acres surrounding the projects. Riparian vegetation would improve on 7 miles of Cottonwood Creek.

Impacts on Wildlife

Wildlife habitat for approximately 250 mule deer, 50 antelope, redband trout, sage grouse, upland game birds, raptors and other nongame species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Construction of 6 miles of livestock fence would permit improvement of riparian habitat along 7 miles of Cottonwood Creek. Expected enhancement of woody riparian cover and overall stream stability would result in possible increases in populations of redband trout and mule deer and improvement of their habitats. Nongame wildlife species of small birds and mammals would also benefit from increased canopies of both woody and herbaceous cover.

Activity related to projected mineral exploration throughout the area would cause minor and temporary wildlife habitat losses and displacement with construction of 30 miles of new roads and 42 acres of surface disturbance. Reclamation actions and time separation between discrete exploration activities would minimize the impact on wildlife populations and habitat. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities cease, habitat is rehabilitated and roads constructed for exploration are closed.

Construction of six livestock reservoirs would provide some improvement of riparian habitats by drawing some cattle grazing out of stream floodplains. The addition of new water sources would have only a minor effect on wildlife, since water is already generally well distributed. Redband trout habitat would continue to be affected by sedimentation resulting from vehicle crossings of Cottonwood Creek.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSAs and enhanced along Cottonwood Creek.

Impacts on Watershed

Mineral exploration in all WSAs would most likely occur on uplands and benches except in Camp Creek and Cottonwood Creek WSAs where exploration sites would likely be in tributary watersheds to Cottonwood and Camp Creeks. Surface disturbance in these areas would cause some additional stream sitation during short-term exploration activities. Since no mineral development is anticipated there would be no long-term effect. As under the other alternatives, 6 miles of pasture fence would enhance watershed in Cottonwood Creek WSA. However, the road in the floodplain of Cottonwood Creek would continue to cause some stream sedimentation in this area. Construction of 6 reservoirs would improve livestock distribution within the study area, allowing for less grazing use of the stream floodplains.

Conclusion: Water quality and overall channel conditions would slightly improve in Cottonwood Creek from fencing and would remain good over the rest of the area.
Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 5,666 AUMs within the portions of the two allotments in the four WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 13 miles of ways and 13.5 miles of roads would continue.

The construction of two reservoirs in the Gold Creek WSA, four reservoirs in the Cottonwood Creek WSA and two springs in Sperry Creek WSA would result in improved livestock distribution.

Five miles of fence in the Cottonwood Creek WSA and 1 mile of fence in the Camp Creek WSA would be constructed to allow a change in grazing management to be implemented that would improve riparian vegetation on 7 miles of stream.

Conclusion: Livestock use would remain at 5,666 AUMs. Project development would improve livestock distribution.

Impacts on Recreation Use

Motorized recreation use would continue on 13 miles of ways, 13 miles of roads between WSAs, and a 0.5-mile-long dead-end road in Gold Creek WSA. Vehicle-based hunting would continue to be the most popular recreational activity. However, since the existing ORV limited designation would remain in effect no increase in motorized recreation is anticipated.

Construction of 6 miles of fence to improve Cottonwood Creek’s riparian zone would enhance recreation in the Cottonwood Creek and Camp Creek WSAs by improving the natural setting and wildlife viewing opportunities. Continued vehicle use in Cottonwood Creek Canyon would continue to disturb wildlife and damage the riparian habitat. Since there would be no significant improvement of recreational opportunities, no increase in recreational use is anticipated.

Projected mineral exploration would cause short-term localized disturbance of recreational opportunities but would have little impact on overall recreation use levels. Development of six reservoirs and two springs would also have little effect on use levels because there is already adequate water in the areas most attractive to recreationists.

Conclusion: The area’s recreation use level of 1,000 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at 5,666 AUMs and overall recreation use would remain at 1,000 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $80,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (Partial Wilderness), projected mineral exploration on 46,870 acres would be precluded. Proposed livestock projects would be precluded, resulting in improved livestock distribution foregone. Vehicle use would be excluded from 46,870 acres, eliminating opportunities for motorized recreation. There would be a slight increase in livestock management costs as a result of the closure of 13 miles of roads and 12 miles of ways and slightly increased distances to relocated sheep camps.

On 2,430 acres recommended nonsuitable for wilderness, projected mineral exploration would lead to unavoidable adverse impacts to wilderness values as a result of three acres of surface disturbance which visually influences an additional 150 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue, with some added minor inconvenience and expense to livestock operators resulting from the exclusion of vehicles for day-to-day inspection activities. Vehicle-based hunting, fishing and recreation would be replaced by primitive, non-motorized recreation activities. The long-term productivity of wilderness values would be preserved on 46,870 acres.

On 2,430 acres recommended as nonsuitable for wilderness, the long-term productivity of wilderness values would decline from other uses over the long term.
Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource on 46,870 acres designated as wilderness. On 2,430 acres not designated as wilderness, future development options would remain open, with possible declines in wilderness values from development actions over the long term.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

Under each of the alternatives, the area would be manageable as wilderness. However, certain manageability problems would exist. Under the all wilderness alternative, it would be difficult to preserve the areas' wilderness characteristics if mineral development occurred on split-estate parcels. Potentially, this could impair naturalness, adversely affecting the areas' wilderness character.

The individual size and shape of Cottonwood Creek, Gold Creek and Sperry Creek WSAs could make management of these areas as separate wilderness areas difficult. They have small, narrow or irregular configurations which would make it difficult to manage them for solitude and primitive recreation, and which would allow outside sights and sounds to adversely affect the areas' wilderness character.

The enhanced wilderness alternative maximizes the ability to manage the area to preserve its wilderness characteristics. The road closures, acquisitions, combination of the four areas and addition of Simmons Gulch would:

- allow rehabilitation of closed roads, restoring the area to a more natural appearance,
- eliminate vehicles on the closed roads, enhancing the area's opportunities for solitude and primitive recreation,
- eliminate the potential of development and the need for access to the private and split-estate lands, preserving the area's naturalness, and
- create a much larger area, resulting in greater distribution of wilderness visitors, enhancing the opportunity for solitude and eliminating size and configuration problems.

The partial wilderness alternative (proposed action) would enhance manageability in a manner similar to the enhanced wilderness alternative. However, this alternative would exclude two areas from wilderness designation. Excluding 1,000 acres of tableland in Cottonwood Creek WSA would move the boundary to a more identifiable location: rimrock overlooking the Cottonwood Creek Canyon. The excluded area borders the boundary road, and contains level terrain. It would be very difficult to exclude vehicles from this area if it were designated as wilderness. Excluding 1,430 acres in the southern portion of the Camp Creek WSA would improve manageability by removing the 40-acre private inholding from the proposed wilderness area and by allowing continued access to the adjacent private property.

Manageability problems would exist on the northern tablelands of Camp Creek WSA where it would be difficult to prevent continued use of existing ways.

Rationale for Selection of the Proposed Action

The partial wilderness alternative is the proposed action because the benefits to be gained by preserving the area's high wilderness values would outweigh the benefits of continued vehicle use on 13 miles of roads and 12 miles of ways, construction of the proposed range projects, and mineral exploration.

Road closures would not cause major problems for facility maintenance or livestock management. These roads are low quality, usually passable only to high clearance or four-wheel-drive vehicles, and used mainly by hunters. The 1-mile-long road between Gold Creek and Camp Creek WSAs would remain open because it crosses an area with low wilderness values and provides the only access to a large area, range facilities and private property west of the WSAs.

Combining Gold Creek WSA with Sperry Creek WSA, and Camp Creek WSA with Cottonwood Creek WSA, would enhance the wilderness quality and manageability of these areas. Providing two large areas would enhance opportunities for solitude and primitive and
unconfined recreation more than providing four smaller wilderness areas. Naturalness and protection of special features would also benefit from the combinations.

Adding 2,200 acres in Simmons Gulch to Gold Creek WSA would enhance wilderness values by providing this WSA with a better configuration and a more identifiable boundary.

The 1,000 acres of tableland in the eastern portion of Cottonwood Creek WSA would be recommended nonsuitable as wilderness because this area contains low wilderness values, and the rim provides a readily identifiable and manageable boundary. Excluding the southern portion of Camp Creek WSA from wilderness designation would maintain existing vehicle access to the 40-acre private inholding at the confluence of Alder and Cottonwood Creeks, and provide for continued vehicle access to private property on the western boundary of the WSA.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: There is inadequate data on recreation use. The area is being studied as an alternate route for a national desert trail. It would provide a low elevation route useable when the Steens Mountains are snowed in. Response: The area would be well suited for an alternate trail route for winter use; however, no formal proposal has been brought forward for such a national desert trail.

Comment: Boundaries of the suitable recommendation are poorly drawn. Response: The boundaries have been expanded to include additional area that was previously nonsuitable or non-WSA. Refer to Section 2, Description of Alternatives, for identification of boundaries.

Comment: The eastern boundary road is not visible; it has revegetated. Some roads are really eroded ways. Potential wilderness acreage east of Gold Creek is eliminated by a way, not a road. Include Simmons Gulch and unroaded lands. Response: Some roads are in very rough condition, but during the wilderness inventory were determined to meet the minimum definition for roads. See the Statewide Volume, Chapter 5, under the scoping section entitled, Issues Considered But Not Analyzed, for a discussion of inventory concerns. In response to public comments, BLM has recommended that the eastern boundary of Gold Creek WSA be moved, allowing the addition of Simmons Gulch to the WSA. Refer to Section 2, Description of Alternatives.

Comment: Close the low standard road between Gold Creek and Sperry Creek WSAs. Move the eastern boundary of Gold Creek WSA to Squaw Creek Road. Response: BLM now recommends the closure of the road between Gold Creek and Sperry Creek WSAs. Simmons Gulch has now been included. See Section 2, Description of Alternatives.

Comment: Acquire private land in Cherry Creek to protect the trout. Response: The enhanced alternative recommends acquisition of the private parcel on Cherry Creek (see Section 2, Description of Alternatives). However, this is not the proposed action. See Section 5, Rationale for Selection of the Proposed Action.

Comment: Possibly the area to be evaluated should go to the Malheur River. Response: The area to the north of the boundary, along the Malheur River, is private and includes a highway that is a major east-west link. This alternative was not considered in earlier versions and will not be considered in the final EIS.

Comment: Combine 3-32 with 3-33. Response: See Section 2, Description of Alternatives.
Table 1. Acreage Open and Closed to Mineral Exploration and Development in each of the WSAs: All Wilderness Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>Acres Closed to Mineral Exploration &amp; Development</th>
<th>Acres Open to Mineral Exploration &amp; Development¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>18,520</td>
<td>680</td>
</tr>
<tr>
<td>Cottonwood Creek (OR-3-32)</td>
<td>8,540</td>
<td>160</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>12,920</td>
<td>680</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>5,360</td>
<td>240</td>
</tr>
<tr>
<td>Total</td>
<td>45,340</td>
<td>1,760</td>
</tr>
</tbody>
</table>

¹An additional 40 acres of private land surrounded by WSA would be open to mineral exploration and development at the landowners' discretion.

Table 2. Projected Exploration for Optical Calcite (for Gold) In the Camp Creek Group of WSAs - All Wilderness Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>Number of Core Holes</th>
<th>Location</th>
<th>Acres of Disturbance</th>
<th>Miles of New Road Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>2</td>
<td>Split-estate parcel in SW corner of WSA</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Cottonwood Creek (OR-3-32)</td>
<td>1</td>
<td>Split-estate parcel in Southern portion of WSA</td>
<td>1.75 (0.2 acres on split-estate)</td>
<td>1.3 (500 ft on split-estate)</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>1</td>
<td>Split-estate parcel in Central portion of WSA</td>
<td>0.75</td>
<td>0.6</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>2</td>
<td>Split-estate parcel in Northern portion of WSA</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td></td>
<td>4</td>
<td>3 (1.7 on split estate)</td>
</tr>
</tbody>
</table>
### Table 3. Existing Livestock Use, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek WSA Harper (No. 0301) 1</td>
<td>10,854</td>
<td>Mar-Oct</td>
<td>14</td>
<td>2,146</td>
</tr>
<tr>
<td>Cottonwood Creek WSA Harper (No. 0301) 1</td>
<td>10,354</td>
<td>Mar-Oct</td>
<td>6</td>
<td>707</td>
</tr>
<tr>
<td>Gold Creek WSA Jonesboro (No. 0305)</td>
<td>2,661</td>
<td>Apr-June</td>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>Gold Creek WSA Harper (No. 0301) 1</td>
<td>10,854</td>
<td>Mar-Oct</td>
<td>9</td>
<td>1,911</td>
</tr>
<tr>
<td>Sperry Creek WSA Jonesboro (No. 0305)</td>
<td>2,661</td>
<td>Apr-June</td>
<td>28</td>
<td>849</td>
</tr>
<tr>
<td>Total</td>
<td>37,384</td>
<td></td>
<td></td>
<td>5,666</td>
</tr>
</tbody>
</table>

1 Of the total licensed use in the Harper Allotment, 1,219 of the AUMs are allocated for use by sheep; the remainder are allocated for cattle. In 1984, the Butte Allotment (0309) was split from the Harper Allotment to create a more manageable situation.

### Table 4. Acreage Closed to Mineral Exploration and Development in each of the WSAs: Enhanced Wilderness Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>Acres Closed to Mineral Exploration and Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>19,240 (Assumes acquisition of 680 acres of mineral estate and 40 acres of private land)</td>
</tr>
<tr>
<td>Cottonwood Creek (OR-3-32)</td>
<td>8,700 (Assumes acquisition of 160 acres of mineral estate)</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>15,800 (Assumes acquisition of 680 acres of mineral estate and includes 2,200 acres of non-WSA public land in wilderness)</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>5,600 (Assumes acquisition of 240 acres of mineral estate)</td>
</tr>
<tr>
<td>Total</td>
<td>49,340 (Assumes acquisition of 1,760 acres of mineral estate, 40 acres of private land and includes 2,200 acres of non-WSA public land.)</td>
</tr>
</tbody>
</table>
Table 5. Acreage Open and Closed to Mineral Exploration and Development In each of the WSA: Partial Wilderness Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>Acres Closed to Mineral Exploration and Development</th>
<th>Acres Open to Mineral Exploration and Development¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>17,770</td>
<td>1,430</td>
</tr>
<tr>
<td>split-estate lands) Cottonwood Creek (OR-3-32)</td>
<td>7,700</td>
<td>1,000</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>15,800</td>
<td>0</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>5,600</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>46,870</td>
<td>2,430</td>
</tr>
</tbody>
</table>

¹An additional 40 acres of private land surrounded by the WSAs would be open to mineral exploration and development at the landowners' discretion.

Table 6. Acreage Open to Mineral Exploration and Development in each of the WSA: No Wilderness/No Action Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>Acres of Public Land Open to Mineral Exploration &amp; Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>19,200</td>
</tr>
<tr>
<td>Cottonwood Creek (OR-3-32)</td>
<td>8,700</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>13,600</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>5,600</td>
</tr>
<tr>
<td>Total</td>
<td>47,100</td>
</tr>
</tbody>
</table>
Table 7. Projected Exploration for Optical Calcite (for Gold) in the Camp Creek Group of WSA - No Wilderness/No Action Alternative

<table>
<thead>
<tr>
<th>WSA</th>
<th>No. of Core Holes</th>
<th>Location</th>
<th>Acres of Surface Disturbance</th>
<th>Miles of New Road Const.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Creek (OR-3-31)</td>
<td>29</td>
<td>Northern &amp; Southern portions of WSA</td>
<td>19.5</td>
<td>14.5</td>
</tr>
<tr>
<td>Cottonwood Creek (OR-3-32)</td>
<td>11</td>
<td>Northeastern, East-central &amp; Southern portions of WSA</td>
<td>5.5</td>
<td>4</td>
</tr>
<tr>
<td>Gold Creek (OR-3-33)</td>
<td>17</td>
<td>Throughout WSA</td>
<td>10.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Sperry Creek (OR-3-35)</td>
<td>12</td>
<td>Throughout WSA</td>
<td>5.5</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td></td>
<td>41</td>
<td>30</td>
</tr>
<tr>
<td>Proposed Management</td>
<td>All Wilderness</td>
<td>Enhanced Wilderness</td>
<td>Partial Wilderness</td>
<td>No Wilderness</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------</td>
<td>---------------------</td>
<td>--------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Acres Designated as Wilderness</td>
<td>47,100</td>
<td>49,300</td>
<td>46,870</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation</td>
<td>47,100</td>
<td>49,300</td>
<td>46,870</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>16</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>3.25</td>
<td>0</td>
<td>2</td>
<td>30.7</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0</td>
<td>1,760</td>
<td>1,760</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>45,340</td>
<td>47,540</td>
<td>45,110</td>
<td>0</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs (Number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Springs (Number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Fences (Miles)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

<sup>1</sup>Upon acquisition, these lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.

<sup>2</sup>Upon acquisition of mineral estate, these lands would be withdrawn from mineral location and leasing.
Table 9. Summary of Environmental Consequences of Alternatives, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wilderness Values</strong></td>
<td>Wilderness designation of the four WSAs (totaling 47,100 acres) would protect and enhance existing wilderness values.</td>
<td>Wilderness designation of 49,340 acres (assuming acquisition of 1,760 acres of split estate and 40 acres of private fee simple lands) would protect and enhance existing wilderness values within the designated area.</td>
<td>Wilderness designation of 46,870 acres (assuming acquisition of 1,760 acres of split estate land) would protect and enhance existing wilderness values within the designated area. Within the 2,430 acres recommended as nonsuitable, projected activities would cause short-term impairment of wilderness values on 3 acres, with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values in the short term over 1,000 acres (approximately 2 percent) of the four WSAs, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td><strong>Energy and Mineral Development</strong></td>
<td>No impact on energy or mineral development is expected.</td>
<td>No impact on energy or mineral development is expected.</td>
<td>No impact on energy or mineral development is expected.</td>
<td>There would be no impact on energy or mineral development.</td>
</tr>
<tr>
<td><strong>Utility Corridor Routing and Development</strong></td>
<td>The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.</td>
<td>The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.</td>
<td>The utility corridor would not be designated within the WSAs and expansion from the existing powerline would occur to the south, with negligible difference in route length.</td>
<td>There would be no impact on the proposed utility corridor.</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Little or no change would occur to overall vegetation. Riparian vegetation would be improved along 7 miles of Cottonwood Creek. Thirteen miles of ways would revegetate.</td>
<td>Little or no change would occur to overall vegetation. Riparian vegetation would be improved along 7 miles of Cottonwood Creek. Thirteen miles of ways and 16 miles of roads would revegetate.</td>
<td>Little or no change would occur to overall vegetation. Riparian vegetation would be improved along 7 miles of Cottonwood Creek. Twelve miles of ways and 13 miles of roads would revegetate. Short-term removal of vegetation on 3 acres from mineral exploration would occur on land recommended non-suitable as wilderness.</td>
<td>Little or no change would occur to overall vegetation. Riparian vegetation would be improved along 7 miles of Cottonwood Creek. Short-term removal of vegetation on 42 acres would occur from mineral exploration. Long-term removal of vegetation would occur on 14 acres from range projects, with changes in vegetative composition, and an increase in utilization level on 120 acres.</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td>Wildlife habitat and populations would be maintained throughout the WSAs and enhanced in the vicinity of closed ways and along Cottonwood Creek.</td>
<td>Wildlife habitat and populations would be maintained throughout the WSAs and enhanced in the vicinity of closed ways and roads, and along Cottonwood Creek.</td>
<td>Wildlife habitat and populations would be maintained throughout the WSAs and enhanced in the vicinity of closed ways and roads, and along Cottonwood Creek.</td>
<td>Wildlife habitat and populations would be maintained throughout the WSAs and enhanced along Cottonwood Creek.</td>
</tr>
<tr>
<td><strong>Watershed</strong></td>
<td>Water quality and overall channel conditions would slightly improve in Cottonwood Creek from fencing and would remain good over the rest of the study area.</td>
<td>Water quality and overall channel conditions would improve from fair to good in Cottonwood Creek and would remain good over the rest of the study area.</td>
<td>Water quality and overall channel conditions would improve from fair to good in Cottonwood Creek and would remain good over the rest of the study area.</td>
<td>Water quality and overall channel conditions would slightly improve in Cottonwood Creek from fencing and would remain good over the rest of the study area.</td>
</tr>
</tbody>
</table>
Table 9. Summary of Environmental Consequences of Alternatives, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs (continued)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would remain at 5,666 AUMs. Use of 13 miles of roads for day-to-day livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.</td>
<td>Livestock use would remain at 5,666 AUMs. Use of 13 miles of ways and 16 miles of roads for day-to-day livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.</td>
<td>Livestock use would remain at 5,666 AUMs. Use of 12 miles of ways and 13 miles of roads for day-to-day livestock management would be foreclosed with some inconvenience and slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.</td>
<td>Livestock use would remain at 5,666 AUMs. Project development would improve livestock distribution.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Recreation use in the four WSAs would increase from approximately 1,000 to 1,500 visitor days per year.</td>
<td>Recreation use of the combined wilderness area would increase from approximately 1,000 to 1,700 visitor days per year.</td>
<td>Within the area recommended suitable as wilderness, recreation use would increase from approximately 1,000 to 1,700 visitor days per year. Within the area recommended nonsuitable as wilderness, recreation use would remain at the current level of fewer than 100 visitor days per year.</td>
<td>The areas' recreation use level of approximately 1,000 visitor days per year would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $6,000.</td>
<td>Annual local personal income would increase by approximately $8,000.</td>
<td>Annual local personal income would increase by approximately $8,000.</td>
<td>Annual local personal income would remain at approximately $80,000.</td>
</tr>
</tbody>
</table>

Table 10. Interior Unnatural Features that Influence the WSAs, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs

<table>
<thead>
<tr>
<th>Feature</th>
<th>Camp Creek</th>
<th>Cottonwood Creek</th>
<th>Gold Creek</th>
<th>Sperry Creek</th>
<th>Total All Four WSAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fences (miles)</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Water Developments</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Ways (miles)</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Total Developments</td>
<td>19</td>
<td>11</td>
<td>13</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td>Percent of WSA Influenced</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>16</td>
<td>7</td>
</tr>
</tbody>
</table>
Table 11. Outstanding Primitive Recreation Opportunities, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs

<table>
<thead>
<tr>
<th>Primitive Recreation Opportunity</th>
<th>Camp Creek WSA</th>
<th>Cottonwood Creek WSA</th>
<th>Gold Creek WSA</th>
<th>Sperry Creek WSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day Hiking</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Backpacking</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camping</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Photography</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird Watching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horseback Riding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(X denotes opportunity available)

Table 12. Classification of Energy and Mineral Potential, Camp Creek (OR-3-31), Cottonwood Creek (OR-3-32), Gold Creek (OR-3-33), and Sperry Creek (OR-3-35) WSAs

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Part of 3-31 and 3-33 (See Map 5)</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-31 and 3-33; 3-32</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>3-35</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Silver, Mercury</td>
<td>3-31, 3-32, 3-33</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>3-35</td>
<td>L</td>
<td>B</td>
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<tr>
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<td>Entire Area (All 4 WSAs)</td>
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<td>B</td>
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<tr>
<td>Uranium/Thorium</td>
<td>Entire Area (All 4 WSAs)</td>
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<td>B</td>
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<td>C</td>
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<td>3-35</td>
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<td>B</td>
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<tr>
<td></td>
<td>3-35</td>
<td>H</td>
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</table>

Legend:

Level of Potential

- **O** - No indication for accumulations of energy/mineral resource
- **L** - Low potential for accumulations of energy/mineral resource
- **M** - Moderate potential for accumulations of energy/mineral resource
- **H** - High potential for accumulations of energy/mineral resource

Level of Certainty

- **A** - Insufficient data or no direct evidence
- **B** - Indirect evidence available
- **C** - Direct evidence but quantitatively minimal
- **D** - Abundant direct and indirect evidence
Table 13. Effects of Alternatives on Local Personal Income, Camp Creek Group WSA (OR-3-31, 32, 33, 35) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness</th>
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<td>$</td>
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LAND OWNERSHIP

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<th>3-33</th>
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<th>3-32</th>
</tr>
</thead>
</table>

LEGEND
- BLM Land Studied Under Section 202 of FLPMA (Other BLM Land in WSA Studied Under Section 503 of FLPMA)
- Wilderness Study Area Boundary
- Bureau of Land Management
- State
- Private
- BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management
Vale District

Camp Creek WSAs

MAP 2 87
Camp Creek WSA OR-3-31
Cottonwood Creek WSA OR-3-32
Gold Creek WSA OR-3-33
Sperry Creek WSA OR-3-35

Wilderness Study Area Boundary
Recommended Suitable for Wilderness
Non-Federal Land within
Recommended Wilderness
Non-Federal Minerals (Split Estate)
within Area Recommended for Wilderness
Recommended Road Closure

U.S. Department of the Interior
Bureau of Land Management
Vale District

Camp Creek WSA

ENHANCED ALTERNATIVE
High Potential (HC) for Optical Calcite
Rest of Area Moderate Potential (MC) for Optical Calcite
Moderate Potential (MB) for Gold
Moderate Potential (MB) for Bentonite
Moderate Potential (MC) for Perlite
Rest of Area Moderate Potential (MB) for Perlite
Entire Area (all 4 WSAs) Moderate Potential (MB) for Oil and Gas

U.S. Department of the Interior
Bureau of Land Management
Vale District

Camp Creek WSA

MODERATE OR HIGH POTENTIAL
MINERAL OR ENERGY RESOURCES

MAP 5
Camp Creek WSA, OR-3-31. East-central portion of the WSA looking west up Wildcat Canyon. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. August 1983.

Camp Creek WSA, OR-3-31 and Cottonwood Creek WSA, OR-3-32. Looking southwest up Cottonwood Creek Canyon. Camp Creek WSA is on the right while Cottonwood Creek WSA is on the left. Within area recommended suitable under the enhanced and partial (proposed action) alternatives. The boundary road separating the two WSAs runs up the canyon but is not visible in this photo. August 1983.
Gold Creek WSA, OR-3-33. Southwestern portion of the WSA looking northeast down Gold Creek Canyon. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. Split-estate land included in the canyon bottom where creek turns to the right. August 1983.

Gold Creek WSA, OR-3-33. Southwestern portion of the WSA looking north across plateau west of Gold Creek. Within area recommended suitable under the enhanced alternative and the partial (proposed action) alternative. August 1983.
Sperry Creek WSA, OR-3-35. Central portion of WSA looking north down Sperry Creek (background is outside the WSA). Within area recommended suitable under the enhanced alternative and the partial (proposed action) alternative. The slopes in the background are north of State Highway 20 and across the Malheur River and outside the WSA. August 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Cedar Mountain Wilderness Study Area (OR-3-47)

1. Introduction

General Description of Study Area

The Cedar Mountain Wilderness Study Area (WSA) is located in Malheur County, approximately 50 miles southwest of Vale and 30 miles northeast of Jordan Valley. It lies midway (approximately 25 miles) in a triangle between State Highway 78 and U.S. Highways 20 and 95 (see Map 1).

The shape of the WSA is irregular. It is approximately 10 miles wide and 8 miles long and contains 33,600 acres of public land including four parcels of split estate, totaling 2,160 acres (see Map 2). In addition, there is one 80-acre parcel of private land inside the WSA.

The boundary consists of a fence line on the north and BLM roads and private land on the remainder. The eastern boundary road and the dead-end road from Seaburn Ranch to Cook Stove Basin Reservoir are low standard dirt roads, while the remaining boundary roads are high standard dirt roads.

Two dead-end roads enter the WSA, forming part of the boundary. One, extending from the northern boundary to Cook Stove Basin Reservoir, is 4.5 miles long. The other, 0.5 miles in length, extends from the western boundary to North Gallagher Reservoir.

The WSA is comprised of Cedar Mountain and its slopes, with elevations in the WSA ranging from 3,940 feet to 5,560 feet. The base of the mountain is approximately at the boundary of the WSA. Cook Stove Basin contains a natural playa (shallow lake during wet years) and is located west of the summit along the crest of the mountain range.

Dominant plants in the WSA include big sagebrush and grasses. Higher elevation portions of the WSA support western juniper in moderately dense stands.

Interrelationships

The WSA is adjacent to Lower Owyhee Canyon WSA (OR-3-110) on the south and southeast. BLM access roads separate the two WSAs.

The WSA is located within the Oregon Department of Fish and Wildlife's (ODFW) Owyhee Wildlife Unit, which contains approximately 3,026-square-miles of habitat. The WSA supports an expanding population of 40 Rocky Mountain elk, 50 pronghorn antelope and 200 mule deer. The ODFW manages the Owyhee Unit to produce 15 bulls per 100 cows of elk, 20 bucks per 100 does of antelope and 15 bucks per 100 does of mule deer. The goal for nongame wildlife is to maintain populations of natural-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values;
- impact on energy and mineral exploration and development;
- impact on 2,160 acres of split-estate lands and the 80-acre private inholding (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume);
• impact on use of two interior dead-end roads;
• impact on Rocky Mountain elk, mule deer, antelope and nongame wildlife populations and habitat;
• impact on livestock grazing use levels and management;
• impact on possible powerline development in a potential north-south utility corridor;
• impact on low level aircraft flights (addressed in the Statewide EIS volume); and
• impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981), professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

• all wilderness
• enhanced wilderness
• no wilderness/no action (proposed action)

A partial alternative is not analyzed because there are no opportunities to eliminate conflicts of wilderness designation with other resource uses by recommending a portion of the area nonsuitable for wilderness designation.

An alternative which would combine this WSA with the adjacent Lower Owyhee Canyon WSA (3-110) is not analyzed because the road separating them is needed for access to private properties and existing facilities.

All Wilderness

The all wilderness alternative would recommend all 33,600 acres of public land in the WSA as suitable for wilderness (see Map 2). For purposes of analysis, it is assumed none of the 80 acres of private land or mineral estate of the 2,160 acres of split-estate land would be acquired. Both dead-end roads would remain open.

Energy and Mineral Development Actions

Wilderness designation would withdraw 31,440 acres of the WSA from mineral entry. A total of 2,160 acres of split-estate land would be open to mineral exploration and development. In addition, an 80-acre private inholding would be open to mineral exploration and development at the landowner’s discretion. Potential exploration for oil and gas would be prohibited on 33,440 acres. Due to a lack of geologic evidence, no known petroleum formations, a thick volcanic cover, and the absence of any existing mineral leases, only casual non-surface disturbing exploration (with no development) is postulated for the 2,160 acres of non-Federal mineral estate and the 80 acres of private land.

Utility Corridor Development Actions

A proposed power transmission corridor on the western edge of the WSA would be rerouted to the west of the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 2,637 AUMs within the portions of the
two allotments in the WSA. The seasons of use would remain as identified in Table 4. Vehicle use for livestock management on 13 miles of closed ways would not occur. Management of livestock and maintenance of 21 miles of fence and a corral would be conducted mainly on horseback. Mechanized heavy equipment would be used once every 5 to 10 years to maintain 13 reservoirs.

Recreation Management Actions

The entire 33,600 acres of public land (excluding the two dead-end roads) would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to the 5 miles on two existing dead-end roads and 13 miles on five existing ways. Current recreational use is estimated to be approximately 200 visitor days per year.

Enhanced Wilderness

The enhanced wilderness alternative would recommend 33,600 acres of public land in the WSA suitable as wilderness (see Map 3). An attempt would be made to acquire 80 acres of private land and the mineral estate of 2,160 acres of split-estate land if the owners are willing. Total area recommended suitable under this alternative would be 33,680 acres. The two dead-end roads totaling 5 miles and 13 miles of ways would be closed.

Energy and Mineral Development Actions

Wilderness designation would withdraw 33,680 acres from mineral entry, assuming acquisition of 80 acres of private land and mineral estate. Potential exploration for oil and gas would be prohibited on 33,680 acres.

Utility Corridor Development Actions

A proposed power transmission corridor on the western edge of the WSA would be rerouted west of the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing would continue at the current level of 2,637 AUMs. Vehicle use would not occur on 13 miles of closed ways and 5 miles of closed dead-end roads. Livestock management and maintenance of 21 miles of fence and a corral would be conducted on horseback. Mechanized heavy equipment would be used once every 5 to 10 years to maintain 13 reservoirs.

Recreation Management Actions

The entire 33,600 acres of public land would be closed to motorized vehicle use, including the 13 miles of ways and 5 miles of dead-end roads. In addition, if acquired, the 80 acres of private land would be closed to motorized use. Current annual recreation use is estimated to be approximately 200 visitor days. Vehicle-oriented recreation is presently limited to existing roads and ways.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 31,440 acres of public lands in the WSA would be open to mineral entry. In addition, 2,160 acres of split-estate land would be open to mineral exploration and development. However, due to the lack of geologic evidence, no known petroleum formations, a thick volcanic cover, and the absence of any existing mineral leases, only casual non-surface disturbing exploration for oil and gas with no development is postulated in the WSA.
Utility Corridor Development Actions

The proposed power transmission line corridor through the western edge of the WSA would be designated and would be available to route a proposed 500-kV powerline along its 6-mile length within the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 2,637 AUMs. Development of proposed projects which would improve livestock distribution and management include three reservoirs and two fences (9 miles).

Vehicle use for livestock management would continue on 13 miles of ways (10-15 trips per year) and 5 miles of dead-end roads (10-15 trips per year) to check on livestock and developments, to spread salt and to maintain facilities.

Recreation Management Actions

Vehicle use would continue to be restricted to the 5 miles on two dead-end roads and the 13 miles on five ways. Current annual recreation use is estimated to be 200 visitor days.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the WSA, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA is generally natural in appearance. There are 21 unnatural features which influence approximately 6 percent of the WSA. These features consist of 13 reservoirs, two fences totaling 21 miles, five ways totaling 13 miles, and a corral. The roads into Cook Stove Basin and North Gallagher Reservoirs, as outside features protruding into the WSA, detract from the naturalness of the slopes and drainages they traverse.

Other similar features outside the WSA which influence naturalness of the WSA are six reservoirs, a fence, boundary roads, a way and a ranch. The influence of these features across the northwestern portion of the WSA is compounded by the sights and sounds of ranching activities which can diminish the WSA’s naturalness on the open, west-facing slopes.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Opportunities for solitude are outstanding due to the large size of the study area and the topographic and vegetative screening in the area. The undulating topography coupled with juniper on Cedar Mountain provides excellent screening for solitude. Approximately 80 percent of the WSA offers a high degree of solitude.

Opportunities for solitude are fewer along the perimeters of the WSA, due to the influence of outside sights and sounds associated primarily with ranching activities.

With Cedar Mountain as the major focal point in the WSA, and the availability of drinking water (if treated) at the 13 reservoirs, opportunities for primitive types of recreation are outstanding. They include backpacking, camping, horseback riding and bird watching. Opportunities for hunting mule deer, antelope and chukar are average, and opportunities for hunting elk are very limited. Topography and vegetation do not restrict foot travel to any identifiable corridors.
Special Features

The WSA supports about 40 Rocky Mountain elk, which have recently migrated from an established herd on Stockade Mountain.

Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Upland section of the Oregon Natural Heritage Plan, the WSA contains western juniper/big sagebrush/bluebunch wheatgrass, big sagebrush/bluebunch wheatgrass and big sagebrush/Idaho fescue communities.

Boise, Idaho, is the one standard metropolitan statistical area with a population over 100,000 within five hours’ driving time of the study area.

Energy and Mineral Development

Energy and mineral resources were evaluated from available geologic data by TERRADATA, a consulting firm under contract with BLM. Technical details of the findings of the evaluation are in a TERRADATA report titled “Assessment of Geology, Energy and Mineral Resources of Cedar Mountain Geologic Resource Area.” BLM geologists reevaluated the report using additional information such as general mining information and oil and gas leases.

The WSA is located within the Cedar Mountain geologic resource area, which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. Table 3 shows the energy and mineral classification for the WSA.

Surface geologic material found in the WSA consists largely of late Tertiary andesite and/or andesitic basalt flows. Other exposed rocks consist of Quaternary and Tertiary colluvium and mafic vent rocks (basaltic and andesitic flows, breccias, cinders, etc.). The surface is underlain by a thick accumulation of Tertiary volcanic and some sedimentary rocks. It is not known what underlies the volcanic cover, however, Paleozoic and Mesozoic marine sedimentary rocks which could indicate hydrocarbon potential may occur at unknown depths since this WSA is within Late Paleozoic and Triassic depositional basins. No metallic mineralization is known in the WSA.

Energy Resources

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas because of the inferred presence of buried Paleozoic and Mesozoic marine sediment which may be petroleum-bearing. However, there has been no deep drilling in the vicinity that has penetrated the Tertiary volcanic cover.

As of October 16, 1987, there were no oil/gas or other mineral leases in the WSA.

Mineral Resources

There are no confirmed mineral deposits located within the WSA. Based upon indirect evidence, no mineral resources have been identified that have a moderate or high potential for occurrence.

As of October 16, 1987, there were no mining claims in the WSA.

Utility Corridor Routing

The Bonneville Power Administration (BPA) has under long-term consideration construction of a 500-kV power transmission line through a potential north-south corridor. The corridor would run through the western fringe of the WSA for 6 miles.

Vegetation

The predominant vegetation in the WSA is Wyoming big sagebrush with an understory of grasses and forbs. Lower elevation communities consist of mid-seral sagebrush/bluebunch wheatgrass, with upper elevation communities in late seral stages consisting of sagebrush/Idaho fescue and lesser portions of sagebrush/bluebunch wheatgrass. Western juniper are scattered throughout the upper elevations of the WSA and are the dominant component of both major communities in places. Several dense stands of juniper occur near the summit of Cedar Mountain.
There are no known threatened or endangered plant species within the WSA.

Wildlife

The WSA supports a small (30-40 animals) but expanding herd of Rocky Mountain elk that have recently migrated in from a nearby established herd. Little is known as yet about their seasonal movements and habits of use on public land. The area provides excellent cover and forage for elk. Minor disturbance to the animals occurs during vehicle travel on existing ways and dead-end roads in the WSA. Water may be a limiting factor for further population expansion.

About 200 mule deer summer in this area. Juniper cover and good range conditions provide quality deer habitat compared with adjoining habitat. Winter use generally occurs outside of the unit in the vicinity of the Owyhee River, about 5 miles southeast of the WSA.

Antelope use is low (50 animals) because of the rocky surface (which restricts ease of movement) and juniper cover (which restricts visibility). Antelope prefer the open lower foothills.

Upland game birds, including chukar and mourning dove, occur in moderate numbers. Reservoirs in the WSA are used for breeding habitat by waterfowl, notably mallards and cinnamon teal. The area also provides diverse habitat for a wide variety of nongame wildlife common in the intermountain region.

There are no known threatened or endangered wildlife species within the WSA.

Watershed

There are no perennial water sources within the WSA. Many intermittent streams fill reservoirs in the spring and these channels are stable and relatively well vegetated. Water quality and channel conditions are generally good.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for grazing by domestic livestock. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 13 reservoirs, 21 miles of fenceline and a corral. The reservoirs are broadly distributed within the WSA.

Livestock operators use motor vehicles on ways and on two dead-end roads in the WSA for fences and reservoir inspection and maintenance, to check on livestock and spread salt. These trips are limited to approximately 10-15 per year. Due to topography and the lack of vehicular access to parts of the WSA, some of the livestock management is accomplished on horseback. Much of the livestock operations is done from the road to Cook Stove Basin Reservoir.

Recent allotment evaluations indicate that the growth and vigor of bluebunch wheatgrass in portions of the WSA is poor due to current livestock grazing practices.

Recreation Use

A small amount of day hiking and backpacking occurs in the WSA. Deer, elk, antelope and chukar hunting is light. Use of vehicles is limited to existing roads and ways through a vehicle use designation. The boundary roads, the two dead-end roads and the five ways are used for hunting access.

Overall, recreation use in the WSA amounts to approximately 200 visitor days per year.

Local Personal Income

Livestock use at the current level of 2,637 AUMs and recreation use totaling 200 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $31,644 for livestock grazing and $2,400 related to recreation use of the WSA, for an overall total of $34,044. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The
Statewide EIS volume discusses certain assumptions that were made for this analysis.

**Impacts of the Alternatives**

**All Wilderness**

Recommended Suitable for Wilderness: 33,600 acres
Recommended Nonsuitable for Wilderness: 0 acres

**Impacts on Wilderness Values**

All of the WSA would be designated wilderness, and wilderness values within the entire 33,600 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. The special feature Rocky Mountain elk herd would receive wilderness protection.

**Naturalness**

The area's naturalness would be protected and enhanced by wilderness designation. The closure of 13 miles of five ways which visually influence approximately 500 acres (1.5 percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, the ways would revegetate and eventually be substantially unnoticeable.

General maintenance of the 21 miles of existing livestock fence would be accomplished by non-motorized methods. Vehicle access for maintenance of 13 reservoirs, involving 13 miles of ways and 0.5 mile of cross-country travel, would be permitted every 5 to 10 years.

**Solitude**

The elimination of motorized use on 13 miles of ways would enhance opportunities for solitude. Continued motorized use on the dead-end roads to Cook Stove Basin Reservoir and North Gallagher Reservoir would hinder opportunities for solitude in the immediate vicinity of these routes where they could be seen or heard by wilderness visitors. Maintenance activities at the 13 reservoirs by heavy equipment would cause short-term disturbance to solitude opportunities for wilderness visitors every 5 to 10 years.

**Primitive and Unconfined Recreation**

Closure of the 13 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation activities such as day hiking, backpacking, camping and horseback riding. The quality of hunting and wildlife watching experiences would improve with the elimination of vehicles on the ways. Continued motorized use of the two dead-end roads which penetrate the area would continue to intrude upon the area's primitive setting. Maintenance activities every 5 to 10 years at the 13 reservoirs by heavy equipment would cause short-term disturbance to wilderness visitors' experiences near these roads due to the visual and/or audible disruption associated with these activities.

**Special Features**

Eliminating motorized use on 13 miles of ways would aid in reducing harassment and the disruption of the freedom of movement of the recently established small herd of Rocky Mountain elk. Continued vehicular use on the dead-end road leading to Cook Stove Basin Reservoir, casual exploration of minerals or energy resources and the periodic (every 5 to 10 years) maintenance activities with heavy equipment at 13 reservoirs would cause minor disruption of the freedom of movement of the elk.

**Conclusion:** Wilderness designation of 33,600 acres would protect and enhance wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 31,440 acres to mineral entry. A total of 2,160 acres of split-estate lands would be open to mineral exploration and development. In addition, the 80-acre private inholding would be open to mineral exploration and development at the landowner's discretion.

**Energy Development**

Exploration for oil and gas would be precluded on 31,440 acres. Exploration could occur on the 2,160 acres of split-estate lands and the 80-acre private inholding. However, due to the lack of geologic evidence to justify development, only casual non-surface disturbing exploration (with no development) is expected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Mineral exploration on 31,440 acres would be precluded. Exploration could occur on the 2,160 acres of split-estate lands and the 80-acre private inholding.
However, as there are no mineral resources with moderate or high potential for occurrence in the WSA, no exploration or development is projected.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Utility Corridor Routing and Development**

The all wilderness alternative would prohibit utility corridor development within the WSA, therefore, the proposed utility corridor along the western edge of the WSA would not be designated. The 6 miles of proposed 500-kV transmission line would have to be rerouted 4 miles to the west, adding negligible length to the route.

**Conclusion:** The utility corridor would not be designated in the WSA and the transmission line would be rerouted 4 miles to the west, with negligible increase in length.

**Impacts on Vegetation**

Continued livestock grazing would maintain the existing vegetative composition and ecological status in the WSA. Due to the vehicle closure, the 13 miles of ways would revegetate in three to five growing seasons, with little effect from permitted vehicle access every 5 to 10 years for reservoir maintenance.

**Conclusion:** The 13 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the WSA.

**Impacts on Wildlife**

Wildlife habitat and populations would be maintained under wilderness designation. The absence of vehicle movement and noise due to closure of the five ways would reduce minor seasonal disturbances to game (including elk, deer, antelope and chukar) and nongame wildlife species.

**Conclusion:** Wildlife habitat and populations would be maintained on 33,600 acres designated wilderness.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 2,637 AUMs within the portions of the two allotments in the WSA. Wilderness designation would preclude the construction of three reservoirs and two fences (9 miles), thus, preventing wider distribution of livestock and more dispersed utilization of available forage to improve the existing condition of primary grazed grass species.

Vehicle use for livestock management and facility inspection/maintenance via 13 miles of ways would be precluded under wilderness designation, resulting in minor inconvenience and additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of 13 reservoirs.

**Conclusion:** Existing livestock use of 2,637 AUMs would continue, with some forage remaining underutilized due to precluded construction of three reservoirs and 9 miles of two fences. Vehicle use of 13 miles of ways would be precluded with minor inconvenience and increased cost to livestock operators.

**Impacts on Recreation Use**

Closure of the five ways would restrict access through portions of the WSA, thus reducing vehicle-oriented hunting to the two dead-end roads which penetrate the WSA. As the public becomes aware of the area’s wilderness qualities and primitive recreation opportunities, increased visitation from wilderness users, including hunters, would offset decreases from vehicle-oriented hunting along the ways.

**Conclusion:** The area’s recreation use level of approximately 200 visitor days per year would not be affected.

**Impacts on Local Personal Income**

Livestock grazing would remain at 2,637 AUMs. Overall recreation use would remain at 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $34,000.
Enhanced Wilderness

Recommended Suitable for Wilderness: 33,600 acres (plus an additional 80 acres of private land, if acquired)
Recommended Nonsuitable for Wilderness: 0 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would add 33,680 acres to the NWPS if the 80 acres of private land is acquired as proposed under this alternative. The mineral estate of 2,160 acres of split-estate land would also be acquired. Motorized vehicle use would be precluded on 13 miles of ways and restricted on 5 miles of roads. All of the WSA would be designated wilderness, and wilderness values of naturalness, solitude, and primitive and unconfined types of recreation opportunities would be protected by legislative mandate. The elk herd, as a special feature, would also receive wilderness protection. Acquisition of the mineral estate and private land would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The effects on naturalness would be similar to the all wilderness alternative except that this enhanced wilderness alternative also includes the acquisition of 2,160 acres of mineral estate on split-estate land and 80 acres of private land, as well as closure of 5 miles of dead-end roads which penetrate the WSA. Acquisition of the mineral estate and the private land would preclude projected exploration activities for energy and mineral resources, thus preserving the pristine naturalness of these areas. The revegetation of the two closed dead-end roads would eliminate their unnatural influence on approximately 300 acres (less than one percent) of the WSA.

General maintenance of the existing 21 miles of livestock fence would be accomplished by nonmotorized methods. The closed ways and dead-end roads would receive periodic vehicle use every 5 to 10 years to provide maintenance of the 13 reservoirs. This infrequent amount of use would not prevent these routes from revegetating.

Solitude

The effects on solitude would be similar to the all wilderness alternative except for the additional enhancement of opportunities for solitude caused by the road closures and proposed acquisitions. Eliminating motorized use on 5 miles of dead-end roads would increase opportunities for solitude within the WSA. Precluding the projected casual exploration activities for energy and mineral resources on 2,160 acres of split-estate lands and 80 acres of private land would maintain existing solitude opportunities.

Maintenance activities at the 13 reservoirs by heavy equipment would cause short-term disturbance to solitude opportunities for wilderness visitors every 5 to 10 years.

As under the all wilderness alternative, closing 13 miles of ways would increase the size of the area where wilderness visitors' sense of solitude would not be disturbed.

Primitive and Unconfined Recreation

The same increased opportunities for primitive and unconfined recreation resulting from closure of 13 miles of ways, as identified under the all wilderness alternative, would occur under this alternative. The elimination of vehicle use on two wilderness alternative, and the elimination of projected energy exploration through acquisition of the 80-acre parcel of private land and the 2,160 acres of mineral estate, would help preserve a natural setting for primitive recreation pursuits.

Maintenance activities every 5 to 10 years at the 13 reservoirs by heavy equipment could cause short-term disturbance of the primitive recreational setting for wilderness visitors.

Special Features

The impacts to the special feature Rocky Mountain elk would be the same as the all wilderness alternative. In addition, the absence of motorized use due to the closure of the dead-end road leading to Cook Stove Basin Reservoir and precluded energy and mineral exploration on acquired split-estate lands and private land would help prevent harassment or disturbance of the small herd of elk.

As identified under the all wilderness alternative, the closure of 13 miles of ways would also help in avoiding harassment or disturbance to the elks' freedom of movement.

Conclusion: Wilderness designation of 33,680 acres (assuming acquisition of the private property) would protect and enhance existing wilderness values. The acquisition of 2,160 acres of mineral estate and 80 acres of private land, and closure of 5 miles of dead-end roads, would further preserve wilderness values.
Impacts on Energy and Mineral Development

Wilderness designation would close 33,680 acres to mineral entry, including 2,160 acres of mineral estate on split-estate lands and 80 acres of private land if acquisition is successful.

Energy Development

Exploration for oil and gas would be precluded on 33,680 acres. No development activities are projected to occur in the WSA, since geologic evidence does not support any exploration or development projections beyond the casual exploration level.

Conclusion: No impact to energy development is expected.

Mineral Development

Mineral exploration would be precluded on 33,680 acres. No exploration or development activities are projected to occur, since there are no mineral resources with moderate or high potential for occurrence in the WSA.

Conclusion: No impact to mineral development is expected.

Impacts on Utility Corridor Routing and Development

The impacts would be the same as the all wilderness alternative. Utility corridor development within the WSA would be prohibited, therefore, the proposed utility corridor along the western edge of the WSA would not be designated. The 6 miles of proposed 500-kV transmission line would have to be rerouted 4 miles to the west, adding negligible length to the route.

Conclusion: The utility corridor would not be designated in the WSA and the transmission line would be rerouted 4 miles west, with negligible increase in length.

Impacts on Vegetation

Impacts would include those described under the all wilderness alternative, with little or no change to vegetative composition or ecological status in the WSA. Due to the vehicle closure, the 13 miles of ways and 5 miles of dead-end roads would revegetate in three to eight years, with little effect from permitted vehicle access every 5 to 10 years for reservoir maintenance.

Conclusion: The 13 miles of ways and 5 miles of dead-end roads would revegetate. Little to no change would occur to vegetation over the rest of the WSA.

Impacts on Wildlife

Impacts would include those described under the all wilderness alternative. In addition, wildlife disturbance from projected casual energy exploration activities on the split-estate lands and private inholding would be avoided. The absence of vehicle movement and noise due to closure of the dead-end roads would reduce minor seasonal disturbances to game (including deer, elk, antelope and chukar) and nongame wildlife species.

Conclusion: Wildlife habitat and populations would be maintained on 33,680 acres designated wilderness (assuming acquisition of 80 acres of private property).

Impacts on Livestock Grazing

Livestock use would continue at the current use level of approximately 2,637 AUMs in the WSA. Wilderness designation would preclude the construction of three reservoirs and two fences (9 miles), thus, preventing wider distribution of livestock and more dispersed utilization of available forage to improve the existing condition of primary grazed grass species.

Vehicle use for livestock management and facility inspection/maintenance via 13 miles of ways and 5 miles of dead-end roads would be precluded, resulting in inconvenience and additional expense to livestock operators. Heavy equipment would be permitted once every 5 to 10 years for maintenance of 13 reservoirs.

Conclusion: Existing livestock use of 2,637 AUMs would continue, some forage remaining underutilized due to precluded construction of three reservoirs and 9 miles of two fences. Vehicle use of 13 miles of ways and 5 miles of dead-end roads would be precluded with minor inconvenience and increased cost to livestock operators.

Impacts on Recreation Use

Closure of the two dead-end roads, in addition to the 13 miles on five ways, would decrease recreational use dependent on motorized access and increase primitive recreational use of the WSA. As the public becomes aware of the area’s wilderness qualities and
outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases from vehicle-oriented (primarily hunting) activities. Hunting could continue to occur by foot or horseback.

**Conclusion:** The area’s recreation use level of approximately 200 visitor days per year would not be affected.

**Impacts on Local Personal Income**

Livestock grazing would remain at 2,637 AUMs. Overall recreation use would remain at 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $34,000.

**No Wilderness/No Action (Proposed Action)**

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 33,600 acres

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 33,600 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values such as naturalness, solitude, opportunities for primitive and unconfined recreation, and the elk herd special feature would be susceptible to the effects of the projected management actions. Projected management actions include transmission line construction within a proposed utility corridor, construction of three reservoirs and 9 miles of fence for management of livestock, casual energy exploration and continued vehicle use on existing roads and ways.

**Naturalness**

Continued use of vehicles would remain limited to the existing 13 miles of ways and 5 miles of dead-end roads. This would maintain the existing visual impact of vehicle tracks upon naturalness on approximately 800 acres (two percent of the WSA).

Development of a potential transmission line in a proposed utility corridor would reduce naturalness in the western portion of the WSA. Projected transmission line development would result in approximately 14 acres of surface disturbance along the 6-mile route within the WSA and would visually influence an estimated 1,800 acres (five percent of the WSA). Projected construction of three reservoirs would cause approximately 15 acres of surface disturbance and visually influence approximately 250 acres (less than one percent) of the area’s natural condition. Nine miles of additional livestock fence would visually influence about 900 acres (about three percent) of the WSA. Projected casual exploration of energy resources would result in negligible surface disturbance and have no long-term effects on the area’s naturalness.

**Solitude**

Continued motorized use on 13 miles of ways and 5 miles of dead-end roads and human activity associated with casual energy exploration are the primary uses which would cause short-term local impairment of solitude opportunities adjacent to these activities. Designation of the utility corridor and projected construction of a 500-kv transmission line would cause a short-term impact on opportunities for experiencing a sense of solitude during construction activities along the 6-mile route. Additional short-term disturbances would occur during maintenance activities of the transmission line. Livestock management and maintenance activities of the range projects, involving approximately 10 to 15 trips per year, would cause short-term disturbance to solitude opportunities for recreational visitors in the vicinity of the facilities and vehicle routes.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 13 miles of ways and 5 miles of dead-end roads in the WSA. Development of the potential transmission line would influence the primitive and unconfined recreational setting over approximately 1,800 acres along its 6-mile route on the western edge of the WSA. Development of the 9 miles of livestock fence and 3 reservoirs would additionally influence approximately 1,150 acres of the area’s natural setting for primitive recreational pursuits.
Special Features

Projected construction of 9 miles of livestock fence, three reservoirs and 6 miles of transmission line, as well as maintenance activities associated with these developments and existing livestock management facilities, would cause a short-term impact by disrupting the freedom of movement of the Rocky Mountain elk when these activities occur.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 2,950 acres of the WSA with further declines from other potential uses over the long term.

Impacts on Mineral and Energy Development

The entire 33,600-acre WSA would be open to mineral exploration and development.

Energy Development

Due to the lack of geologic evidence to justify an extensive exploration/development program in the WSA, only casual surface exploration (without development) is projected for oil and gas.

Conclusion: No impact to energy development is expected.

Mineral Development

As no mineral resources have a moderate or high potential for occurrence in the WSA, no exploration or development is projected.

Conclusion: No impact to mineral development is expected.

Impacts on Utility Corridor Routing and Development

Under this alternative, the 500-kV transmission line could be constructed in the proposed utility corridor location through 6 miles of the WSA.

Conclusion: There would be no impact to utility corridor routing and development.

Impacts on Vegetation

Projected construction of three reservoirs and 9 miles of fence would remove vegetation from approximately 15 acres. Projected construction of a power transmission line within the proposed utility corridor would remove vegetation along a narrow band for 6 miles impacting approximately 14 acres of vegetation.

Continued livestock grazing would maintain the existing vegetative composition on the rest of the WSA. At the three constructed reservoirs, an area of livestock grazing influence of approximately 5-10 acres per reservoir would show a more grazed appearance. Reservoir development would provide for expanded livestock distribution, resulting in utilization of key forage species in locations previously not available for grazing by livestock. The expanded distribution of livestock would provide for long-term improved growth and vigor of vegetation, and thereby improve the ecological status of vegetation in existing areas of livestock grazing.

Conclusion: Twenty-nine acres of vegetation would be removed within the WSA with no change to the vegetative composition on most of the WSA and improvement of the ecological status from early or mid-seral stages towards a late seral stage on existing livestock grazed areas.

Impacts on Wildlife

Additional water provided by the projected development of three reservoirs would enhance game (including elk, deer, antelope, chukar and waterfowl) and nongame wildlife by providing expanded habitat for more of these species. Game and nongame wildlife species would continue to be disturbed by occasional vehicle use on the existing 13 miles of ways and 5 miles of dead-end roads. Projected placement of a transmission line in a proposed utility corridor would impact wildlife habitat through 14 acres of surface disturbance and approximately 7,900 acres of influence during development and maintenance activities of the transmission line. Nine miles of projected fence development would cause minor impacts to wildlife. Short-term localized disturbance to the freedom of wildlife movement would occur during construction and maintenance activities of fences and reservoirs.

Conclusion: Wildlife habitat and populations would be enhanced in the vicinity of three projected reservoirs and maintained in the remainder of the WSA.

Impacts on Livestock Grazing

Vehicle use for livestock management and facility inspection/maintenance would continue on 13 miles of ways and 5 miles of roads (10-15 trips per year). Projected construction of three reservoirs and two fences (9 miles) would improve livestock distribution
and allow the present grazing systems to be modified to achieve a rangeland management objective of improving ecological condition.

**Conclusion:** Livestock distribution and management would be improved with construction of three reservoirs and two fences.

**Impacts on Recreation Use**

Motorized recreation use would continue on 13 miles of ways and 5 miles of dead-end roads. This would maintain vehicle-oriented hunting opportunities in the area and allow access for day hiking which would provide for reasonable hiking distances for a day’s outing through much of the WSA. Therefore, current recreation types and use levels would remain unchanged.

**Conclusion:** The area’s recreation use level of approximately 200 visitor use days per year and current types of recreation use would not be affected.

**Impacts on Local Personal Income**

Livestock grazing would remain at 2,637 AUMs. Overall recreation use would remain at 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $34,000.

**Unavoidable Adverse Impacts of the Proposed Action**

Under the Proposed Action (No Wilderness/No Action), projected transmission line and range development activities would lead to unavoidable adverse impacts to wilderness values and a result of 29 acres of surface disturbance which would visually influence approximately 2,950 acres.

**Relationship Between Short Term Uses and the Maintenance and Enhancement of Long Term Productivity**

Under the Proposed Action, existing short-term uses would continue and future development options, including projected transmission line and range developments, would remain open. Improved distribution of livestock would meet long-term livestock management objectives identified for the area. However, due to transmission line and range developments, long-term productivity of wilderness values would be directly lost on 29 acres, which would visually influence approximately 2,950 acres of the WSA. Further declines in wilderness values from other potential uses would be expected over the long term.

**Irreversible and Irretrievable Commitment of Resources**

Under the Proposed Action, projected transmission line and range developments would result in an irreversible commitment of the wilderness resource on 29 acres directly, with the natural wilderness character on the western edge of the WSA compromised on 1,800 acres from visual influence of the transmission line.

**5. Wilderness Manageability and Rationale for Proposed Action**

**Manageability of the Area as Wilderness**

The WSA would be manageable as wilderness, but it might be difficult to ensure that wilderness values would be preserved over the long-term. There are 13 reservoirs widely distributed within the WSA. Since each reservoir may require heavy equipment maintenance once every 5 to 10 years, though not occurring during the same years for all of the reservoirs, there could be a reoccurring need to use the heavy equipment within the WSA. On a short-term basis in the vicinity of the reservoirs and their access routes, use of the heavy machinery would seriously disrupt outstanding opportunities of solitude and primitive recreation activities such as day hiking, backpacking, camping, and horseback riding. Other livestock management activities, such as periodic visits to check livestock condition and salting, would also detract from wilderness visitors’ sense of solitude.

Under the all wilderness alternative, opportunities for solitude would be impacted during casual exploration of energy resources on the four split-estate parcels.
and private inholding which are distributed throughout the WSA. Under the enhanced wilderness alternative, the area's manageability as wilderness would be enhanced by the closure of 5 miles of dead-end roads and the acquisition of split-estate and private parcels.

Rationale for Selection of the Preferred Alternative

The no wilderness/no action alternative is the Proposed Action because of the benefits to be gained by retaining development options and continuing existing uses in the WSA. Projected activities include the intensive management of livestock in the area through construction and maintenance of three proposed reservoirs and 9 miles of fence and development of the transmission line. Present methods of maintenance of numerous livestock facilities (including 13 reservoirs, 21 miles of fence and 18 miles of access roads and ways) would be allowed to continue unconstrained.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Consider combining this WSA with other WSAs located in the Owyhee River area. Response: See Section 2, Description of the Alternatives, regarding the discussion of alternatives considered but not analyzed.

Comment: The forage needs of Rocky Mountain elk are not analyzed. Response: The presence of elk in the WSA is recent and it is not clear whether the population will maintain itself. Estimating forage requirements and allocating forage between livestock and wildlife are established in the Allotment Management Plan process and are not germane to this document.

Comment: The projected increase of 150 AUMs for livestock under the preferred alternative is questionable because development of additional reservoirs may not be feasible. Response: The proposed action no longer projects an increase of AUMs within the WSA. Presently, there exists 13 reservoirs within the WSA. The construction of three reservoirs would assist in improved distribution of livestock presently in the area.

Comment: BLM is urged to contact Idaho Department of Fish and Game about "Economic Analysis of Fish and Game" and complete such a study on all WSAs. Response: See Statewide volume, Chapter 5, under the discussion of issues considered but not analyzed.

Comment: Protection should be provided for archeological and historic features in this and other Owyhee River area WSAs. Response: Currently, there are no known archeological or historical features in this WSA, however, no inventories have been conducted to determine the extent of cultural resources throughout this WSA. Discovered cultural resources would be protected under existing federal laws and regulations.
Table 1. Summary of Proposed Management Under Each Alternative, Cedar Mountain WSA (OR-3-47)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>33,600</td>
<td>33,600</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation</td>
<td>33,600</td>
<td>33,600</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>13</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired</td>
<td>0</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired</td>
<td>0</td>
<td>2,160</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>31,440</td>
<td>31,440</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Utility Corridor Developed</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs and Waterholes (number)</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Fences (miles)</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

1Except for 5 miles of dead-end roads and 13 miles of ways in the WSA, the acreage shown is already closed to cross-country vehicle use through a “limited” ORV designation.

2Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.

3Upon acquisition of the mineral estate, these lands would be withdrawn from mineral location and leasing.
Table 2. Summary of Environmental Consequences of Alternatives, Cedar Mountain WSA (OR-3-47)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 33,600 acres would protect and enhance wilderness values.</td>
<td>Wilderness designation of 33,680 acres (assuming acquisition of the private property) would protect and enhance existing wilderness values. The acquisition of 2,160 acres of mineral estate and 80 acres of private land, and closure of 5 miles of dead-end roads, would further preserve wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 2,950 acres of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy or mineral development is expected.</td>
<td>No impact on energy or mineral development is expected.</td>
<td>No impact on energy or mineral development is expected.</td>
</tr>
<tr>
<td>Utility Corridor Routing</td>
<td>The utility corridor would not be designated in the WSA and the transmission line would be rerouted 4 miles to the west, with negligible increase in length.</td>
<td>The utility corridor would not be designated in the WSA and the transmission line would be rerouted 4 miles to the west, with negligible increase in length.</td>
<td>There would be no impact to utility corridor routing and development.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>The 13 miles of ways would revegetate. Little or no change to vegetation would occur in the rest of the WSA.</td>
<td>The 13 miles of ways and 5 miles of dead-end roads would revegetate. Little or no change would occur in the rest of the WSA.</td>
<td>Twenty-nine acres of vegetation would be removed with no change in vegetation composition on most of the WSA and improvement of the ecological status from early or mid-seral stages towards a late seral stage on existing livestock grazed areas.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 33,600 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 33,680 acres designated wilderness (assuming acquisition of 80 acres of private property).</td>
<td>Wildlife habitat and populations would be enhanced in the vicinity of three reservoirs and maintained in the remainder of the WSA.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use of 2,637 AUMs would continue, some forage remaining underutilized due to precluded construction of three reservoirs and 9 miles of two fences. Vehicle use of 13 miles of ways would be precluded with minor inconvenience to livestock operators.</td>
<td>Existing livestock use of 2,637 AUMs would continue, some forage remaining underutilized due to precluded construction of three reservoirs and 9 miles of two fences. Vehicle use of 13 miles of ways and 5 miles of dead-end roads would be precluded with minor inconvenience to livestock operators.</td>
<td>Livestock distribution and management would be improved with construction of three reservoirs and two fences.</td>
</tr>
<tr>
<td>Recreation</td>
<td>The area's recreation use level of approximately 200 visitor days per year would not be affected.</td>
<td>The area's recreation use level of approximately 200 visitor days per year would not be affected.</td>
<td>The area's recreation use level of approximately 200 visitor use days per year and current types of recreation use would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $34,000.</td>
<td>Annual local personal income would remain at approximately $34,000.</td>
<td>Annual local personal income would remain at approximately $34,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Cedar Mountain WSA (OR-3-47)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Cedar Mountain WSA (OR-3-47)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent of Allotment in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>11/01-04/01 (Cedar Mtn.)</td>
</tr>
<tr>
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<td>15,086</td>
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<td>Total</td>
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Table 5. Effects of Alternatives on Local Personal Income, Cedar Mountain WSA (OR-3-47) (1981 price levels)

<table>
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<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
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<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
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<td>Livestock Grazing</td>
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<td>Recreation Use</td>
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<td>Total</td>
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</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- Private
- BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management
Vale District

Cedar Mountain WSA
OR-3-47

LAND OWNERSHIP

2 MILES
Wilderness Study Area Boundary

Boundary of Adjacent Wilderness Study Areas

Recommended Suitable for Wilderness

Non-Federal Land within Recommended Wilderness

Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness

Recommended Road Closure
Cedar Mountain WSA, OR-3-47. Northeast portion of WSA looking east. Within area recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Cedar Mountain WSA, OR-3-47. West-central portion of WSA looking southeast. Within area recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. Small reservoir typical on range developments in this WSA shown at center of photo. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Dry Creek Wilderness Study Area (OR-3-53)

1. Introduction

General Description of Study Area

The Dry Creek Wilderness Study Area (WSA) is located west of the Owyhee Reservoir in Malheur County, approximately 27 miles southwest of Vale (see Map 1).

The WSA contains 23,500 acres of public land, including three parcels (totaling 1,000 acres) of split-estate land (see Map 2).

The WSA is approximately 7 miles long and 5 miles wide. It is bounded by high grade dirt roads and parcels of private property along the northern and western boundaries, and a high grade dirt road along the eastern boundary. The southern boundary is composed of ways, a fenceline and topographic features.

Dry Creek Canyon is the dominant topographic feature within the WSA. This scenic canyon, carved by the intermittent waterflow of Dry Creek, bisects the WSA for 9 miles until leaving it at the northeastern boundary near the Dry Creek Arm of Lake Owyhee. The width of the canyon’s floor usually averages between 250 and 500 feet, but near the confluence of Freezeout Creek it widens to 0.75 mile. Sage-covered slopes (often with gradients greater than 50 percent) form the canyon’s sides. Frequent cliffs, rimrock, and outcroppings provide picturesque diversity. These geologic features are composed of both basalt and layered ash deposits, thus adding a variety of colors to the canyon scenery.

With the exception of several drainages such as Freezeout, Deadhorse, and Sheep Creeks, the terrain away from Dry Creek is less steep. Rolling hills and numerous drainages of varying lengths characterize the landscape. There are also several buttes, ridges, and tablelands.

Sagebrush and grasses are the dominant plants within the WSA. However, the riparian zone along Dry Creek supports a variety of plants not represented in the surrounding semiarid environment. These include rushes, sedges and willow.

Interrelationships

The Dry Creek Buttes WSA (OR-3-56) is adjacent to the southeast boundary of Dry Creek WSA for approximately 6 miles. The two WSAs are separated by a road.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports a year-long population of approximately 100 mule deer and 50 pronghorn antelope. ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Dry Creek supports self-sustaining populations of redband trout, a Federal candidate for listing under the Endangered Species Act. ODFW manages wild trout populations so as to maintain their genetic purity and current distribution within the state. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for the WSA include:
• impact on the area’s wilderness values,
• impact on energy and mineral exploration and development,
• impact on threatened and endangered species,
• impact on mule deer, pronghorn antelope, redband trout and other wildlife populations and habitat,
• impact on watershed,
• impact on livestock grazing use levels and management,
• impact on the spread of noxious weeds, and
• impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State, and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgement regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

• all wilderness
• enhanced wilderness
• no wilderness/no action (proposed action)

A partial alternative is not analyzed because there are no major resource conflicts that would warrant recommending only a part of the WSA as suitable for wilderness. The enhanced alternative does not include an analysis of closing the boundary road and combining this WSA with Dry Creek Buttes WSA because the road is the only major route on the west side of Owyhee Reservoir. Another alternative which would combine this WSA with the Dry Creek Buttes, Slocum Creek, Honeycombs, Wild Horse Basin, and Upper Leslie Gulch WSAs is not analyzed because it would not be practical to close the road between the Dry Creek and Dry Creek Buttes WSAs (as stated above), and because the Owyhee Reservoir lies between the Dry Creek WSA and the other WSAs. The reservoir and adjacent lands are managed by the Bureau of Reclamation, and are not subject to wilderness consideration.

All Wilderness

Under the all wilderness alternative, 23,500 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the mineral estate of the split-estate lands would not be acquired.

Energy and Mineral Development Actions

Wilderness designation would close 22,500 acres of public land within the WSA to mineral entry. A total of 1,000 acres of split-estate lands would be open to mineral exploration and development.

Exploration for energy resources, including oil and gas which have a moderate potential of occurrence, would be prohibited on 22,500 acres. Due to the lack of geologic evidence indicating favorability, an absence of confirmed petroleum-bearing formations and a relatively thick volcanic cover on the surface, only casual exploration (with no development) is postulated on the 1,000 acres of split-estate lands.

Exploration for mineral resources, including gemstones (picture jasper) and optical calcite (which have high potential for occurrence), as well as perlite, bentonite, diatomite, and zeolite (which have moderate potential for occurrence) would be prohibited on 22,500 acres. Mineral development is not postulated to occur on the 52 existing mining claims located primarily in the northeastern portion of the WSA as they contain no known developable mineral resources.

Exploration for gemstone picture jasper is postulated to occur on the 1,000 acres of split-estate lands and would most likely consist of surface examination for jasper veins, followed by the development of a surface mine, probably in the western portion of the 640-acre parcel located in the northeastern portion of the WSA. This operation would consist of blasting, sizing and removal of the jasper, and would result in 5 acres of surface disturbance, including 2.5 miles of road construction.
As both picture jasper and optical calcite are indicators of gold/silver mineralization, exploration for these metals is postulated to occur on the 1,000 acres of split-estate lands. This effort would most likely consist of surface examination and sampling, followed by core drilling on or near the picture jasper/optical calcite occurrences. These tests may involve up to four holes (two on the southern parcel and two on the 640-acre parcel in the northeastern portion of the WSA) and may disturb 4 acres, including approximately 1 mile of road. The discovery of an economic deposit is not anticipated and no development is projected.

Exploration for perlite is postulated to occur on the 1,000 acres of split-estate lands. This effort would most likely consist of surface examination and sampling, followed by the drilling of one corehole on the 640-acre parcel in the northeastern portion of the WSA. This test would involve approximately 1.5 acres of surface disturbance, including 1 mile of new road construction.

Due to the lack of direct geologic evidence indicating favorability and no known deposits, no development is postulated for bentonite and zeolite on the 1,000 acres of split-estate lands.

Total surface disturbance resulting from energy and mineral exploration/development is postulated to be 10.5 acres, including 4.5 miles of road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 2,939 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management on 9 miles of ways would be precluded. Four miles of fence would be constructed to allow a change in livestock management to improve riparian vegetation on 6 miles of stream. Management of livestock and maintenance of 9 miles of existing fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs and two developed springs.

Recreation Management Actions

The entire 23,500 acres of public land would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 9 miles of existing ways. Current recreational use is estimated to be approximately 600 visitor days per year.

Enhanced Wilderness

Under the enhanced wilderness alternative, 23,500 acres of public land would be recommended suitable as wilderness (see Map 3). The mineral estate of the 1,000 acres of split-estate land would be acquired, if the owners are willing, through purchase or exchange.

Energy and Mineral Development Actions

Wilderness designation would close 23,500 acres within the WSA to mineral entry, including 1,000 acres of split-estate lands where the Federal government would attempt to acquire the mineral estate.

Exploration for energy resources, including oil and gas which have a moderate potential for occurrence, would be prohibited on 23,500 acres. Exploration for mineral resources, including gemstones (picture jasper) and optical calcite (which both have high potential for occurrence), as well as perlite, diatomite, bentonite and zeolite (which all have moderate potential of occurrence) would be prohibited on 23,500 acres. Mineral development is not postulated to occur on the 52 mining claims located in the northeastern portion of the WSA, as they contain no known developable mineral resources.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s
wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 2,939 AUMs in the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Four miles of fence would be constructed to allow a change of livestock management to improve riparian vegetation on 6 miles of stream. Vehicle use for day-to-day livestock management on 9 miles of ways would be precluded. Management of livestock and maintenance of 9 miles of existing fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs and two developed springs.

Recreation Management Actions

The entire 23,500 acres of public land would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 9 miles of existing ways. Current recreational use is estimated to be approximately 600 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 23,500 acres of public land in the WSA would be open to mineral exploration and development.

Due to the lack of direct geologic evidence indicating favorability, absence of confirmed petroleum-bearing formations, a relatively thick volcanic cover on the surface and an absence of existing mineral leases, only casual exploration for oil and gas is postulated.

Exploration for gemstone picture jasper is postulated to occur throughout the WSA. This effort will most likely consist of surface examination for veins of jasper-bearing material, followed by the development of three picture jasper surface mines, probably in the northeastern portion of the WSA. These operations would consist of blasting, sizing and removal of the jasper and would result in approximately 15 acres of surface disturbance, including 3.5 miles of new road construction.

As picture jasper and optical calcite are indicators of gold/silver mineralization, exploration for these minerals is also postulated to occur, probably in the eastern portion of the WSA. This effort would likely consist of surface examination and sampling, followed by core drilling on or near the picture jasper/optical calcite occurrences. These tests may involve up to 12 holes and may disturb 12 acres, including approximately 5 miles of new road construction. The discovery of an economic gold/silver deposit is not anticipated and no development is projected.

Exploration for perlite is postulated to occur in the eastern portion of the WSA. This effort will most likely consist of field examination and sampling, followed by core drilling. These tests may involve up to five holes and may disturb 4 acres, including 2.5 miles of new road construction. The discovery of a large volume deposit is not anticipated and, therefore, no development is projected.

Due to the lack of direct geologic evidence indicating favorability, and the absence of confirmed deposits, only casual exploration is postulated for diatomite, bentonite and zeolite.

Total surface disturbance resulting from energy and mineral exploration/development is postulated to be 31 acres, including 11 miles of road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.
Livestock Management Actions

Brush would be controlled on 2,500 acres and seeded to crested wheatgrass to increase forage for livestock. The potential increased allocation to livestock would be 500 AUMs.

Four reservoirs would be built and three springs would be developed to improve livestock distribution. Four miles of fence would be built to allow a change in livestock management to improve riparian vegetation on 6 miles of stream. Noxious weeds would be controlled through spraying on 150 acres.

Vehicle use for livestock management and maintenance of existing and proposed livestock projects would occur on 9 miles of ways. The ways are used 10 to 15 times per year to check livestock, spread salt and maintain facilities.

Recreation Management Actions

Vehicle use would continue to be restricted to the 9 miles of existing ways through vehicle designation. Current recreational use is estimated to be approximately 600 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. Unnatural features are scattered and, because of the screening provided by rugged terrain, are substantially unnoticeable. Eighteen unnatural features influence approximately 3,300 acres (14 percent) of the WSA. These features include eight ways (totaling 9 miles), five fences (totaling 9 miles), three reservoirs, and two developed springs. Dry Creek Canyon is influenced only by fences and a cabin with corrals.

Unnatural features outside the WSA detract from the naturalness of the WSA, especially in the northern portion. The PP&L 500-kV powerline is the main outside unnatural feature influencing naturalness within the WSA. This powerline can be seen from most high points and ridges in the WSA and from the area north of Dry Creek Canyon along the northern boundary. The line is not visible from inside Dry Creek Canyon and its side draws. Twin Springs campground can be seen from two areas in the extreme northeast corner of the WSA.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The major reason the area offers outstanding opportunities for solitude is the diverse topography associated with Dry Creek and its two side drainages, Sheep and Freezeout Creeks. These canyons with their steep walls, meanders, and angular ridges provide excellent topographic screening but are relatively short. Topographic screening is not good throughout the rest of the WSA because the terrain is mostly rolling, shallow drainages. Away from the canyons, vegetative screening is minimal because shrubs and grasses seldom reach four feet in height.

Outside sights and sounds affecting opportunities for solitude within the WSA are minor, and are mainly associated with grazing management activities, traffic on the boundary roads, and camping at Twin Springs campground. Traffic and campground use increase noticeably during hunting season.

Dry Creek Canyon provides an attractive setting for day hikes and backpacking trips because it offers relatively easy hiking, year-round water, isolated locations, and few intrusions. Recreation use would be concentrated within this narrow, open canyon limiting the opportunity for solitude and unconfined primitive recreation. However, the opportunity for primitive recreation in the WSA is outstanding because of the diversity of possible activities available, including horseback riding, bird watching, fishing, hunting, sightseeing and photography.

Special Features

Two plant species of special interest, Astragalus solitarius (weak-stemmed milkvetch) and Astragalus
sterilis (sterile milkvetch), occur in the WSA. (These plants are discussed further in the Vegetation section.)

Redband trout, a Federal candidate for listing under the Endangered Species Act, occurs in Dry Creek. (This fish is discussed further in the Wildlife section.)

The complexity and diversity of the natural community is greatly enhanced by the presence of year-round water in Dry Creek, which provides aquatic and riparian habitats that contrast dramatically with the surrounding semi-desert environment.

**Diversity of the National Wilderness Preservation System**

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass community.

Boise, Idaho is the only standard metropolitan statistical area with a population over 100,000 within five hours’ driving time of the WSA.

**Energy and Mineral Development**

Energy and mineral resources were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment sampling by geologists from TERRADATA, Inc., a consulting firm under BLM contract. Technical details of the finds of the evaluation are in TERRADATA’s “Assessment of the Geology, Energy, Mineral Resources of Lake Owyhee Geologic Resource Area (GRA).” Based on additional information such as general mining information and oil and gas leases, the report was reevaluated by BLM geologists.

Surface geologic material in the WSA consists largely of late Tertiary volcanoclastic and clastic fluvialite (river) and lacustrine (lake) sediments that contain conspicuous arkose sandstone derived from a plutonic source. Other exposed geologic material consists of extrusive olivine basalts and other flows of basalts with small exposures of rhyolite. No pre-Tertiary rocks are exposed in the WSA and it is not known what underlies the Cenozoic cover. However, in so far as this area is within the margins of late Paleozoic and Triassic depositional basins (e.g. Oregon’s ancient coastline), Mesozoic and Paleozoic rocks may occur at unknown depths.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals and the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the statewide EIS volume.

Table 3 shows the energy and mineral classification for the WSA.

**Energy Resources**

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas, based on the inferred presence of petroleum-bearing marine sedimentary rocks at depth.

As of October 16, 1987, there were no oil and gas leases in the WSA.

**Mineral Resources**

No confirmed mineral deposits have been found in the WSA. However, gemstones (picture jasper) and optical calcite are known to occur within the WSA, especially along the eastern and southern boundaries. Therefore, based on this direct geologic evidence and the presence of similar rocks throughout the WSA, the entire WSA is considered to have a high potential for the occurrence of these mineral resources. Picture jasper and optical calcite are indicators of gold/silver mineralization. These precious metals may occur in association with jasper and optical calcite, but none have been found.

Based on direct geologic evidence, the entire WSA is considered to have a moderate potential for the occurrence of perlite due to its known occurrence within the WSA and the presence of similar rocks throughout the WSA.

Based on indirect evidence, i.e., the presence of favorable rock types found throughout the WSA (lacustrine tuffaceous sediments), the entire WSA is considered to have a moderate potential for the occurrence of diatomite, bentonite, and zeolite.

As of October 16, 1987, there were 52 mining claims located within the WSA, mostly in the northeastern portion. They have probably been located for picture jasper and precious metals.
Vegetation

A wide variety of plant communities and species occur in the WSA. Predominant vegetation is a Wyoming big sagebrush/bluebunch wheatgrass community in low to mid-seral stage. However, sandy environments in the southeastern portion of the WSA support an Indian ricegrass/needle-and-thread/big sagebrush community, and salt desert shrub species represented by greasewood, spiny hopsage, and shadscale may be found at mid- to lower slope portions of drainages. Bands of unusual soils which vary from supporting practically no vegetation to bands supporting sparse vegetation ring the hills and canyons in portions of the WSA. Buckwheats and purple sage are predominant species on these bands, with bitterbrush also occurring on some.

Other herbaceous species, including locoweed, penstemons, phlox, and giant wildrye, may be found throughout the WSA.

Two plant species of special interest (mentioned in the Special Features section) occur within the WSA: Astragalus sterilis (sterile milkvetch) and Astragalus solitarius (weak-stemmed milkvetch). These plants are Federal candidates for listing under the Endangered Species Act. The sterile milkvetch depends on site-specific conditions offered by tuffaceous ash deposits, and the weak-stemmed milkvetch is intermingled with sagebrush at lower elevations.

Riparian species such as Lewis mock orange, willow, clematis, rushes and sedges are found along Dry Creek and other intermittent tributaries in the WSA.

An invasion of broom snakeweed, a native perennial shrub favored by lower seral stages, is occurring in upland portions of the WSA, and exotic annuals such as Canada and Scotch thistle are invading poor condition pockets throughout the WSA. These plants are considered to be noxious weeds.

Wildlife

Approximately 100 mule deer and 50 pronghorn antelope occur within the WSA, mostly in association with riparian habitats. Chukar partridge habitat is high quality and populations are normally high. Other upland game birds present include California quail, mourning doves and gray partridge. Nongame species present are generally common and widespread within the intermountain region.

Dry Creek supports a limited fishery of redband trout. Except for high water in the spring, surface water is generally restricted to deep pools scattered along the drainage. Redband trout are currently a Federal candidate for listing under the Endangered Species Act. Dry Creek provides the most important wildlife habitat in the WSA because of the year-round water and riparian habitat.

Watershed

Approximately 9 miles of an intermittent to ephemeral stream, Dry Creek, flows through the WSA. The majority of the stream length is confined within a rocky, steep-sloped canyon. Approximately 2 to 3 miles of Dry Creek flows through less confined reaches in the vicinity of Freezeout Creek. Several intermittent tributaries to Dry Creek dissect the landscape. During the late summer, water persists in isolated, deep pools in Dry Creek. Water quality is generally good except in the more open areas in the Freezeout Creek vicinity that are more accessible to cattle. These open areas are subject to intense livestock use, causing bank erosion, which results in wide and shallow channels. The change to wide, shallow channels and the reduction in streamside vegetation results in an increase in water temperatures and a decline in water quality.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 9 miles of fence, three reservoirs and two springs.

Livestock operators use motor vehicles on ways approximately 10 to 15 times per year to inspect and maintain fences and reservoirs, check on livestock and spread salt. Due to rugged topography and the lack of vehicle access to parts of the WSA, some of the livestock management is accomplished on horseback.

Recreation Use

Mule deer and chukar hunting are very popular, especially along Freezeout Creek and the eastern portion of Dry Creek. Twin Springs campground, which is located just outside the WSA, is used as a base camp for hunting and recreational rockhounding within the WSA. Trout are common in some sections.
of Dry Creek, but fishing pressure is light and generally incidental to other recreational activities. Access for most hunting and fishing in the WSA is physically limited to foot travel. Vehicle use is very slight and is not expected to increase. Vehicles are limited by vehicle designation to 9 miles of existing ways.

Overall recreation use in the WSA amounts to approximately 600 visitor days per year.

Local Personal Income

Livestock use at the current level of 2,939 AUMs and recreation use totaling 600 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $35,268 for livestock grazing and $7,200 related to recreation use of the WSA, for an overall total of $42,468. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 23,500 acres. Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

The all wilderness alternative would add 23,500 acres to the NWPS. Nine miles of ways would be closed. All of the WSA would be designated wilderness, and wilderness values within the area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including two plant species of special interest, redband trout populations, and ecological diversity resulting from year-round water in Dry Creek, would also be protected.

Naturalness

The WSA's naturalness (86 percent is not influenced by internal unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of 9 miles of ways which influence approximately 850 acres (less than four percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, revegetation would make the ways substantially unnoticeable. Approximately 2.5 miles of ways leading to Sheep Corral Reservoir and South Sheep Creek Reservoir in the northwest portion of the WSA would receive use every 5 to 10 years in order to provide heavy equipment maintenance of the reservoirs. This infrequent use would not prevent revegetation of the ways. Another reservoir and two developed springs are located at or near the WSA's boundary. They would be maintained through cross-country access with little disturbance to naturalness.

A proposed fence north of Dry Creek Canyon would likely be allowed because it would enhance wilderness values by protecting natural processes and restoring deteriorated habitat. The construction of 4 miles of fence would allow a grazing system to be implemented that would improve riparian vegetation and the natural appearance of 6 miles of Dry Creek. The fence itself, as an unnatural feature, would influence approximately 400 acres. For most of its length, it would not be visible from inside Dry Creek Canyon.

Solitude

Opportunities for solitude would be improved through the elimination of motorized use on 9 miles of ways. Vehicles would be limited to the boundary roads, where they would continue to influence solitude only within a narrow strip at the WSA's edge.

There would be a temporary disruption of opportunities for solitude during the construction of the proposed fence, as well as every 5 to 10 years during maintenance activities at the springs and reservoirs.

Primitive and Unconfined Recreation

Closure of 9 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation activities such as hiking, backpacking, horseback riding, hunting, fishing, camping, photography, birdwatching, and sightseeing. Removal of
vehicles and rehabilitation of the ways would improve the quality of these activities by providing a more natural, primitive, wild setting.

Construction of 4 miles of fence to control grazing in riparian areas would improve riparian vegetation and benefit populations of redband trout, mule deer and songbirds. Wildlife viewing, fishing, hunting and camping opportunities would therefore be improved.

Special Features

Revegetation of 9 miles of ways would reduce their effects on the area's scenic vistas. Construction of 4 miles of fence would improve riparian vegetation along 6 miles of Dry Creek. Ecological diversity would be enhanced, and habitat for redband trout would be improved.

Conclusion: Wilderness designation of the entire 23,500 acres within Dry Creek WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 22,500 acres to mineral entry. A total of 1,000 acres of split-estate lands would be open to mineral exploration and development.

Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 22,500 acres. Due to the lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) for oil and gas is projected for the 1,000 acres of split-estate lands.

Conclusion: No impact on energy development is expected.

Mineral Development

Exploration for mineral resources, including picture jasper, optical calcite, perlite, diatomite, bentonite and zeolite, would be precluded on 22,500 acres. No mineral exploration and development is expected on the 52 mining claims located in the northeastern portion of the WSA due to the lack of known developable resources. As a result of wilderness designation, production from two projected picture jasper surface mines would be precluded.

The development of one picture jasper surface mine is projected to occur on the 640-acre parcel of split-estate land in the northeastern portion of the WSA. The discovery of economic deposits of gold/silver (in association with picture jasper and optical calcite), is not anticipated and no development is projected. The discovery of a large volume deposit of perlite is not anticipated and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration for diatomite, bentonite and zeolite is postulated for the 1,000 acres of split-estate lands.

Conclusion: Production from two projected picture jasper mines would be foregone.

Impacts on Vegetation

Four miles of proposed fence would better control livestock access to, and use of, the riparian area along 6 miles of Dry Creek, resulting in an upward trend and allowing the ecological condition in the riparian area to approach its potential natural community.

Closure of 9 miles of ways would allow revegetation of approximately 9 acres within three to five growing seasons.

Over most of the remaining area, upland vegetative composition and ecological condition would not change because current livestock grazing practices would continue. However, noxious weeds, including broom snakeweed and thistles, would continue to invade some poor condition pockets and upland sites.

Conclusion: Riparian vegetation would be improved along 6 miles of Dry Creek. Nine miles of ways would revegetate. Noxious weeds would continue to invade some poor condition sites. Little change would take place to vegetation over the rest of the area.

Impacts on Wildlife

Wildlife habitat for approximately 100 mule deer, 50 pronghorn antelope and a large population of chukar partridge would be improved under wilderness designation by closing 9 miles of ways to vehicles, thereby reducing human disturbances to wildlife populations and habitat.

Four miles of proposed fence would improve riparian habitat along 6 miles of Dry Creek, possibly increasing populations of redband trout, mule deer and certain nongame birds such as warblers.
Wildlife forage and cover would continue to be ensured in preparation of livestock allotment management plan goals. In accordance with ODFW management goals and BLM's wilderness management policy, wildlife habitat would continue to be managed to support existing wildlife populations.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSA and enhanced along 6 miles of Dry Creek.

Impacts on Watershed

Water quality would continue to decline in the open floodplain areas of Dry Creek, in the Freezeout Creek vicinity, due to cattle accessibility. These less confined reaches are subject to intense livestock use, causing bank erosion which results in wide and shallow channels. The change to wide, shallow channels and the reduction in streamside vegetation results in an increase in water temperatures and a decline in water quality. The projected construction of 4 miles of pasture fence would restrict movement of cattle down small tributaries into the upper canyon reaches of Dry Creek, and would therefore improve riparian vegetation and water quality on 6 miles of stream.

Conclusion: Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 2,939 AUMs within the portions of the two allotments in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 9 miles of ways would be precluded under wilderness designation. This would result in inconvenience and slight additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs and two developed springs. This periodic infrequent use would involve 2.5 miles of ways and 0.3 mile of cross-country travel.

A brush control and seeding on 2,500 acres would be precluded and a potential increase of 500 AUMs would be foregone. The construction of four reservoirs and development of three springs to improve livestock distribution would be precluded.

The control of noxious weeds on 150 acres would be prohibited since the noxious weeds do not threaten valuable resources outside the WSA (scattered populations of noxious weeds already exist in areas adjacent to the WSA), or special resources within the WSA. Precluding control of these weeds would result in their slow spread and the loss of less than 10 AUMs over the next 50 years.

Four miles of fence would be constructed to allow implementation of a grazing system that would improve riparian vegetation on 6 miles of stream by reducing grazing pressure on streamside vegetation.

Conclusion: Livestock use would continue at approximately 2,939 AUMs. A potential allocation increase of 500 AUMs and improved livestock distribution would be foregone. The use of 9 miles of ways for day-to-day livestock management would be precluded with inconvenience and some increase in cost to livestock operators.

Impacts on Recreation Use

Closing 9 miles of ways to motorized vehicles would cause only a slight reduction in recreation use because most recreation inside the WSA is physically limited to foot travel. This reduction would be more than offset by a gradual increase in primitive recreation use resulting from increased public awareness that the area was being managed to preserve and enhance existing wilderness qualities and opportunities for primitive and unconfined recreation. Overall recreation use is projected to increase from the current level of approximately 600 visitor days per year to approximately 700 visitor days per year.

Conclusion: The area’s overall recreation use level would increase from approximately 600 visitor days per year to approximately 700 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 2,939 AUMs. Projected energy and mineral development would amount to one non-metallic mine. Overall recreation use would increase by 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $1,200 per year, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $1,000.
Enhanced Wilderness

Recommended suitable for wilderness: 23,500 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would add 23,500 acres to the NWPS. The mineral estate on 1,000 acres of split-estate would be acquired if the owners are willing. Nine miles of ways would be closed. All of the WSA would be designated wilderness, and wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including two plant species of special interest, redband trout populations, and ecological diversity resulting from year-round water in Dry Creek, would also be protected. Acquisition of the mineral estate would prevent projected disturbance from mineral exploration and development, and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The effects on naturalness would be similar to the all wilderness alternative except that the enhanced wilderness alternative also includes the acquisition of 1,000 acres of mineral estate. The acquisition of mineral estate would preclude unnatural disturbances caused by mineral exploration and development, thus preserving the naturalness of the area.

Unnatural disturbances precluded by acquisition of the mineral estate include the major, long-term impact of a jasper surface mine and 2.5-mile access road in Dry Creek Canyon that would cause 5 acres of surface disturbance and visually impair naturalness over approximately 1,300 acres, and the localized, short-term impact of mineral exploration that would result in 5.5 acres of surface disturbance and 1.75 miles of new roads.

Closing 9 miles of ways would allow revegetation and eliminate their unnatural influence on approximately 850 acres, the same as under the all wilderness alternative.

Four miles of new fence would have the same impact as under the all wilderness alternative. It would improve the natural appearance of the riparian area along 6 miles Dry Creek, but add the unnatural feature of the fence, influencing about 400 acres.

Solitude

The effects on solitude would be similar to the all wilderness alternative except for the additional enhancement of opportunities for solitude caused by the acquisition of 1,000 acres of mineral estate. This acquisition would prevent disturbance associated with mineral exploration and development. Most importantly, it would preserve opportunities for solitude in Dry Creek Canyon, the portion of the WSA which receives the greatest visitor use, by precluding a projected surface mine. Activity associated with this mine would impair opportunities for solitude along 3 miles of Dry Creek Canyon. Noise from blasting and heavy equipment operation would influence a much larger area.

There would be a temporary disruption of opportunities for solitude during the construction of the proposed fence, as well as every 5 to 10 years during maintenance activities at the springs and reservoirs.

As under the all wilderness alternative, closing 9 miles of ways would increase the size of the area where wilderness visitors' solitude would not be disturbed by vehicle use.

Primitive and Unconfined Recreation

The same increased opportunities for primitive and unconfined recreation resulting from closure of the ways and construction of 4 miles of fence, identified under the all wilderness alternative, would occur under this alternative. In addition, acquisition of the 1,000 acres of mineral estate would prevent mineral exploration and development, thus preserving a natural setting for primitive recreational pursuits. This acquisition would especially benefit primitive recreation opportunities in Dry Creek Canyon by precluding development of a projected surface mine. During operation, the mine would displace wildlife and disturb the natural, primitive, wild setting of the lower 3 miles of Dry Creek Canyon.

Special Features

The impacts to special features would be the same as in the all wilderness alternative except that the acquisition of 1,000 acres of mineral estate would prevent mineral exploration and development. By precluding surface disturbance and road construction associated with projected mineral exploration and development, the acquisition would prevent potential damage to populations of two plant species of special interest and to populations of redband trout. The riparian zone along Dry Creek would be protected, preserving ecological diversity and wildlife habitat.
Closing 9 miles of ways would reduce their effects on scenic vistas, the same as under the all wilderness alternative.

The construction of 4 miles of new fence also provides the same impacts as identified under the all wilderness alternative - improvement of riparian vegetation along 6 miles of Dry Creek, resulting in enhanced habitat for redband trout and other wildlife species and enhancement of ecological diversity.

Conclusion: Wilderness designation of 23,500 acres would protect and enhance existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 23,500 acres to mineral entry (assuming the acquisition of 1,000 acres of mineral estate from split-estate lands).

Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 23,500 acres. Due to the lack of geologic evidence to justify an extensive exploration/development program, no development activities have been projected.

Conclusion: No impact on energy development is expected.

Mineral Development

Exploration for mineral resources, including picture jasper, optical calcite, perlite, diatomite, bentonite and zeolite, would be precluded on 23,500 acres. No mineral exploration and development is expected on the 52 mining claims located in the northeastern portion of the WSA due to the lack of known developable resources. As the result of wilderness designation and acquisition of the mineral estate, production from three projected surface picture jasper mines would be foregone.

Conclusion: Production from three projected picture jasper mines would be foregone.

Impacts on Vegetation

Under the enhanced wilderness alternative, little or no change would take place to vegetation over most of the area. Upland vegetative composition and ecological condition would not change because current grazing practices would continue. Acquisition of the mineral estate of split-estate land would prevent possible disturbance to the special interest species from projected mining activities. Broom snakeweed and thistles, which are noxious weeds, would continue to invade some poor condition pockets and upland sites.

As described in the all wilderness alternative, 4 miles of proposed fence would permit recovery of riparian vegetation along Dry Creek as cattle access to this area would be better controlled.

Closure of 9 miles of ways would allow revegetation of approximately nine acres within three to five growing seasons.

Conclusions: Riparian vegetation would be improved along 6 miles of Dry Creek. Noxious weeds would continue to invade some poor condition sites. Nine miles of ways would revegetate. Little or no change would take place to vegetation over the rest of the area.

Impacts on Wildlife

Under the enhanced alternative, acquisition of the mineral estate would preserve wildlife habitat for approximately 100 deer, 50 antelope and a large population of chukar partridge by precluding projected exploration and development of energy and mineral resources. Wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plan goals. The proposed fence would improve riparian habitat along 6 miles of Dry Creek, possibly increasing populations of redband trout, mule deer and certain nongame birds such as warblers. Vehicle closure on 9 miles of ways would improve freedom from human interaction for all species of wildlife present and would increase habitat through revegetation of approximately nine acres.

Conclusion: Wildlife habitat and populations would be enhanced throughout the WSA.

Impacts on Watershed

Acquisition of the mineral estate of split-estate parcels would ensure that watershed conditions would not further decline due to surface disturbance from projected mineral exploration and development. Precluding the mine on the split-estate parcel would eliminate the need for approximately 2.5 miles of access road in the Dry Creek floodplain. Streambank instability and increased sedimentation resulting from vehicle use on this road would therefore be avoided.
Water quality would continue to decline in the open floodplain areas of Dry Creek, in the Freezeout Creek vicinity, due to cattle accessibility. These less-confined reaches are subject to intense livestock use causing bank erosion which results in wide and shallow channels. The change to wide, shallow channels and the reduction in streamside vegetation results in an increase in water temperatures and a decline in water quality. The projected construction of 4 miles of pasture fence would restrict movement of cattle down small tributaries into the upper canyon reaches of Dry Creek and would allow an improvement of riparian vegetation and water quality on 6 miles of Dry Creek.

**Conclusion:** Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.

### Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 2,939 AUMs within the portions of the two allotments in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 9 miles of ways would be precluded under wilderness designation. This would result in inconvenience and some additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs and two developed springs. This periodic infrequent use would involve 2.5 miles of ways and 0.3 mile of cross-country travel.

A brush control and seeding on 2,500 acres would be precluded with a potential allocation increase of 500 AUMs foregone. The construction of four reservoirs and development of three springs to improve livestock distribution would be precluded.

The control of noxious weeds on 150 acres would be precluded resulting in a slow continued spread and decline in forage for livestock. The loss of forage is projected to be less than 10 AUMs over the next 50 years.

Four miles of fence would be constructed to allow implementation of a grazing system that would improve riparian vegetation on 6 miles of stream by reducing grazing pressure on streamside vegetation.

**Conclusion:** Livestock use would continue at approximately 2,939 AUMs. A potential allocation increase of 500 AUMs and improved livestock distribution would be foregone. The use of 9 miles of ways for day-to-day livestock management would be precluded with inconvenience and some increase in cost to livestock operators.

### Impacts on Recreation Use

As in the all wilderness alternative, closing 9 miles of ways to vehicles would cause only a slight reduction in recreation use. Acquisition of the 1,000 acres of mineral estate would prevent mineral exploration and development, preserving a natural setting for recreational pursuits. Most importantly, this acquisition would prevent the development of a jasper mine in Dry Creek Canyon, the portion of the WSA that would receive the greatest recreational use. Excluding mineral development from Dry Creek Canyon would contribute to an increase in primitive recreation in this area. In addition, as the public became aware that the area was being managed to preserve and enhance the existing wilderness qualities and opportunities for primitive and unconfined recreation, recreation use would increase. Overall recreation use is projected to increase from the current level of approximately 600 visitor days per year to approximately 900 visitor days per year.

**Conclusion:** The area's overall recreation use level would increase from approximately 600 visitor days per year to approximately 900 visitor days per year.

### Impacts on Local Personal Income

Livestock grazing would remain at 2,939 AUMs and overall recreation use would increase by 300 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $3,600 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $3,600.

### No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommend nonsuitable for wilderness: 23,500 acres

### Impacts on Wilderness Values

Under the no wilderness alternative, the entire 23,500 acres would not be designated wilderness and
wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area’s special features (including two plant species of special interest, redband trout populations, and ecological diversity) would be subject to the effects of the proposed management actions. Projected actions include mineral exploration and development, a 2,500-acre crested wheatgrass seeding, construction of 4 miles of fence, development of four reservoirs and three springs, control of noxious weeds on 150 acres, continued vehicle use for livestock management and facility maintenance/inspection, and continued recreational vehicle use limited to existing ways.

Naturalness

Continued vehicle use on 9 miles of ways would maintain the impact of tracks on the naturalness of approximately 850 acres (less than four percent of the WSA).

Projected mineral exploration would cause 16 acres of short-term, localized surface disturbance (exploration pits and approximately 7.5 miles of access roads). Reclamation and natural revegetation would leave little evidence of disturbance to naturalness. Projected development of three jasper mines, including construction of approximately 3.5 miles of new roads, in the northeastern portion of the WSA would cause approximately 15 acres of long-term surface disturbance and would visually influence naturalness over approximately 2,500 acres.

The construction of 4 miles of fence would allow a grazing system to be implemented that would improve riparian vegetation and the natural appearance of 6 miles of Dry Creek. The fence, as an unnatural feature, would visually influence approximately 400 acres.

A 2,500-acre crested wheatgrass seeding would replace the natural vegetation in much of the northeast portion of the WSA, affecting almost 10 percent of the WSA. The visual influence of this vegetative manipulation would affect approximately 3,200 acres.

Four new reservoirs and three new developed springs, scattered throughout the WSA, would cause approximately 11 acres of surface disturbance and have a visual influence on the naturalness of approximately 400 acres.

In total, projected management actions within the WSA would cause approximately 2,525 acres of long-term surface disturbance and vegetative change, and have a long-term influence on the naturalness of approximately 6,500 acres (almost 28 percent of the WSA). Some of this acreage is located in areas already influenced by existing unnatural features. Most of the northeastern portion of the WSA, including the lower 3 miles of Dry Creek Canyon, would be influenced by unnatural features.

Solitude

Continued vehicle use on 9 miles of ways and human activity associated with mineral exploration would cause short-term local impairment of solitude opportunities adjacent to the activity. Development of three jasper mines in the northeastern portion of the WSA and regular vehicle use of their access roads would cause major long-term impairment of opportunities for solitude in the surrounding area. The lower 3 miles of Dry Creek Canyon, part of the area expected to receive the highest visitor use, would be affected by mining activities.

Temporary disruption of opportunities for solitude would occur from construction of the proposed fence, reservoirs and springs, as well as noxious weed control on 150 acres and the brush control and seeding project on 2,500 acres. Temporary disruptions would also occur every 5 to 10 years during maintenance of springs and reservoirs.

Primitive and Unconfined Recreation

Vehicle use would continue to be limited to existing ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of 9 miles of ways. Construction of 4 miles of fence would enhance riparian vegetation and habitat along 6 miles of Dry Creek and improve the natural setting for primitive and unconfined recreation activities such as hunting, fishing, birdwatching, camping, and photography.

Projected mineral exploration would have localized, short-term effects on primitive recreation experiences. Development of three jasper mines would have long-term effects, especially in Dry Creek Canyon. Noise, human activity and surface disturbance associated with mining would disturb and displace wildlife, harm scenic vistas, and degrade the natural setting upon which primitive and unconfined recreation depends.

Construction of four reservoirs and three developed springs would have little impact on opportunities for primitive and unconfined recreation. Eleven acres of surface disturbance would decrease naturalness, but the additional water sources would facilitate recreational use of the entire WSA.
The 2,500-acre crested wheatgrass seeding would alter the recreational setting by replacing the natural vegetation on almost 10 percent of the WSA. The diversity and complexity of the natural community would be greatly reduced. Activities dependent on natural settings, such as wildflower viewing, bird-watching and photography, would be displaced.

**Special Features**

Continued vehicle use on existing ways would maintain impacts on special features, including impairment of scenic vistas.

Projected mineral exploration and development would occur in the vicinity of special interest plants and the riparian zone. Damage to the riparian zone could reduce populations of redband trout and the complexity and diversity of the natural community. However, monitoring and mitigation measures would either avoid or minimize these impacts. Construction of 4 miles of fence would enhance vegetation and habitat along 6 miles of stream.

A 2,500-acre crested wheatgrass seeding would replace natural vegetation in the northeastern portion of the WSA. Neither of the special interest plant species have been found in this area, and a search would be made prior to seeding.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 6,500 acres (almost 28 percent) of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

All of the 23,500 acres of public land in the WSA would be open to mineral exploration and development.

**Energy Development**

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration without development is projected for oil and gas.

**Conclusion:** There would be no impact on energy development.

**Mineral Development**

The development of three surface mines for picture jasper is projected to occur in the northeastern portion of the WSA.

Exploration for gold/silver (in association with picture jasper and optical calcite), involving 12 core holes, is postulated to occur, mainly in the eastern portion of the WSA. The discovery of economic gold/silver deposits is not anticipated and no development is projected.

Exploration for perlite (involving five core holes) is postulated to occur, largely in the northeastern portion of the WSA. The discovery of a large volume deposit is not anticipated and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is projected for diatomite, bentonite and zeolite.

**Conclusion:** There would be no impact to mineral development. Projected development of three jasper mines would occur.

**Impacts on Vegetation**

A crested wheatgrass seeding in the northern portion of the WSA would remove 2,500 acres of existing vegetation. Neither of the special interest species have been located in this area, and an extensive vegetation clearance for these species would be made prior to actual seeding. Vegetation directly disturbed would be a Wyoming big sagebrush/bluebunch wheatgrass community in low to mid-serial stage. This vegetation would be replaced with crested wheatgrass, which would be available for consumption by livestock.

Projected mineral exploration would temporarily disturb vegetation at the drill sites and on the new roads. Mineral development would directly remove vegetation on at least 15 acres. Some of this development may occur in the vicinity of special interest plant habitat. However, monitoring and mitigation measures would either avoid or minimize damage to these areas.

As in the all wilderness alternative, the proposed 4-mile fence would permit better control of livestock, and riparian vegetation on 6 miles of Dry Creek would be given the opportunity to achieve an upward trend toward its potential natural community.
Spraying of thistles and broom snakeweed on 150 acres would help control the invasion of these noxious weed species into new sites in the WSA and would promote reestablishment of natural plant communities in the presently invaded areas.

Construction of four reservoirs and the development of three springs would improve livestock distribution in the pastures and reduce grazing pressure at existing waters. These projects would remove vegetation on approximately 11 acres.

**Conclusion:** Crested wheatgrass would replace native vegetation on 2,500 acres. Vegetation would be removed on 26 acres. Noxious weeds would be controlled on 150 acres. Riparian vegetation would improve along 6 miles of Dry Creek.

**Impacts on Wildlife**

Projected energy and mineral exploration and development would result in surface disturbance on 31 acres of habitat and result in approximately 11 miles of new roads. Impacts associated with these actions include increased public access and human intrusion into wildlife habitats and displacement of wildlife. Impacts associated with exploration efforts would be short-term since reclamation and revegetation of roads and disturbed sites would occur immediately after cessation of exploration work. Development of three surface jasper mines would have long-term impacts on wildlife. Displacement would occur, and possible damage to riparian habitat would affect populations of mule deer, antelope, and redband trout.

The proposed fence would improve riparian habitat along 6 miles of Dry Creek, possibly increasing populations of redband trout, mule deer, and certain nongame birds such as warblers. This habitat improvement would occur upstream of habitat damaged by mineral development. Construction of four reservoirs and development of three springs would provide new late season water sources for almost all species of wildlife present. New livestock use of previously unused areas would not impact wildlife forage resources.

Projected spraying, by eliminating exotic thistle species on 150 acres, would remove wildlife forage and cover, particularly for chukars, song birds and mourning doves. There is a remote chance of some mortalities to birds and small mammals related to ingestion of, or exposure to, the spray.

The proposed 2,500-acre crested wheatgrass seeding would reduce the diversity of wildlife forage and cover since reestablishment of native vegetation would be precluded.

Wildlife forage and cover would continue to be ensured in preparation of livestock allotment management goals. In accordance with ODFW management goals, wildlife habitat would continue to be managed to support existing wildlife populations.

**Conclusion:** Fifteen acres of habitat would be eliminated and 3 miles of riparian habitat would be damaged, displacing or reducing populations of mule deer, antelope and redband trout. Six miles of riparian habitat would be improved, enhancing populations of redband trout, mule deer, and non-game birds such as warblers. The diversity of wildlife forage and cover would be reduced on 2,500 acres.

**Impacts on Watershed**

Approximately 2.5 miles of new road would be built up the Dry Creek floodplain as access to projected mineral developments. This road may cause bank instability, increased sedimentation and a change in timing of flows, causing discharge to occur more quickly and for a shorter duration. Heavy equipment and other vehicles using the road would create vibrations that would contribute to increased bank erosion, especially in areas of sparse vegetation. Possible stream crossings would contribute to breakdown of streambanks and would churn up the stream bottom, increasing sedimentation.

Water quality would continue to decline in the more open floodplain areas of Dry Creek, in the Freezeout Creek vicinity, due to cattle accessibility. These less confined reaches are subject to intense livestock use causing bank erosion which results in wide and shallow channels. The change to wide, shallow channels and the reduction in stream side vegetation results in an increase in water temperatures and a decline in water quality. The construction of 4 miles of pasture fence would restrict movement of cattle down small tributaries into the upper canyon reaches of Dry Creek and would allow for good riparian vegetation condition along 6 miles of this stream.

Spraying for noxious weeds on 150 acres would have little impact on watershed. Sites to be sprayed are located away from drainages on gently sloping terrain.

Seeding of 2,500 acres is expected to occur on gently sloping terrain with shallow, clayey, well-drained soils. Additional sediment input to some intermittent tributaries to Dry Creek may occur, however this input should be short term and insignificant in quantity.
Conclusion: Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.

Impacts on Livestock Grazing

A brush control and seeding on 2,500 acres would result in a potential increased allocation of 500 AUMs to livestock. The control of noxious weeds on 150 acres would prevent spread of the weeds and the loss of less than 10 AUMs.

Four reservoirs would be built and three springs would be developed to improve livestock distribution.

Four miles of fence would be constructed to allow the implementation of a grazing system that would improve riparian vegetation along 6 miles of stream by reducing grazing pressure on streamside vegetation.

Vehicle use for livestock management and facility inspection/maintenance would continue on 9 miles of ways.

Conclusion: An additional allocation of 500 AUMs would be realized. Livestock distribution would be improved.

Impacts on Recreation Use

Motorized recreation use would continue on 9 miles of ways, but because most recreation in the WSA is physically limited to foot travel, this would have little impact on the amount of recreation use of the WSA.

Development of three jasper mines would reduce recreation use because upland and big game species would be displaced, the natural setting would be damaged and opportunities for solitude would decline. Especially critical would be impairment of recreational opportunities in Dry Creek Canyon, the portion of the WSA most used by recreationists.

Construction of 4 miles of fence would enhance recreation use of 6 miles of Dry Creek by improving the natural setting, and increasing or preserving populations of trout, deer, and birds.

Construction of four reservoirs and three developed springs would have little effect on the amount of recreational use of the WSA, but might encourage more dispersed use by providing additional water sources.

The 2,500-acre crested wheatgrass seeding would reduce recreation because it would disturb the natural setting currently sought by recreationists in the area.

As a result of mineral development and vegetation manipulation, recreation use is expected to decrease from approximately 600 visitor days per year to approximately 400 visitor days per year.

Conclusion: The area’s overall recreation use level would decrease from approximately 600 visitor days per year to approximately 400 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would increase by 500 AUMs. Projected energy and mineral development would amount to three non-metallic mines. Overall recreation use would decrease by 200 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $3,600 per year, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $3,600.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), mineral development and implementation of range projects would lead to unavoidable adverse impacts to wilderness values as a result of 2,530 acres of surface disturbance and vegetative alteration, which visually influence approximately 6,500 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, existing short-term uses would continue and future development options (including projected mineral and range developments) would remain open. Long-term productivity of wilderness values would be directly lost on 2,530 acres from surface disturbance and indirectly lost on approximately 6,500 acres from visual disturbance due to projected mineral development, brush control and seeding, and construction of four reservoirs, three spring developments and four miles of fence. Further declines in wilderness values due to other uses would be possible over the long term.
Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, projected mineral development would result in an irreversible commitment of the wilderness resource on 15 acres as well as an irretrievable commitment of the mineral resource. Vegetative manipulation and reservoir, spring and fence construction would directly reduce wilderness values by an additional 2,511 acres. The natural character of the WSA would be compromised on approximately 6,500 acres from the visual influence of these developments.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

Because it is entirely public land, of a relatively large size and concentrated configuration, and possesses a large degree of naturalness, the WSA would be manageable as wilderness. Manageability would be improved if the mineral estate of split-estate land were acquired, thereby preventing potential adverse effects from access to, and incompatible surface disturbing activities on these parcels. The 640-acre parcel of split-estate land in Dry Creek Canyon is especially important. Mineral development on this parcel would seriously damage wilderness values in the portion of the WSA most used by recreationists, making manageability as wilderness very difficult. A powerline located just north of the WSA is visible from most of the WSA’s highpoints, affecting the area’s naturalness, and further reducing manageability as wilderness.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action because of the major benefits to be gained from allowing proposed projects. These projects include the construction of proposed range developments, the projected increase in forage of 500 AUMs, unconstrained maintenance of existing livestock facilities, casual exploration for energy, and development of mineral resources.

The potential for mineral development on split-estate land and the adverse impact on the area’s naturalness of a powerline north of the WSA could make wilderness management difficult.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The EIS misrepresents solitude and recreational values and gives an inaccurate description of features. Response: Opportunities for solitude or recreation are both rated as outstanding for this WSA, with some portions better than others. For further descriptions of recreation and solitude opportunities, refer to Section 3, Affected Environment.

Comment: The EIS lacks information on wildlife and plants. Response: Descriptions of both resources have been expanded in the current volume. Refer to Section 3, Affected Environment.

Comment: Analysis for the preferred alternative is inadequate because the power line is not a sufficient reason to drop the WSA from wilderness recommendation - topographic screening is adequate. Response: Outside sights and sounds are no longer used as rationale for exclusion from wilderness recommendation.
<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>23,500</td>
<td>23,500</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>23,500</td>
<td>23,500</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>4.5</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired(^2)</td>
<td>0</td>
<td>1,000</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>22,500</td>
<td>22,500</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs (Number)</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Springs (Number)</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Fences (Miles)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonstructural Livestock Projects Developed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush control with Seeding (Acres)</td>
<td>0</td>
<td>0</td>
<td>2,500</td>
</tr>
<tr>
<td>Noxious Weed Spraying (Acres)</td>
<td>0</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>Increase in Forage Allocation (AUMs)</td>
<td>0</td>
<td>0</td>
<td>500</td>
</tr>
</tbody>
</table>

\(^1\)Except for 9 miles of ways in the WSA, most of the acreage shown is already closed to cross-country vehicle limited ORV designation.

\(^2\)Upon acquisition of mineral estate, these lands would be withdrawn from mineral location and leasing.
Table 2. Summary of Environmental Consequences of Alternatives, Dry Creek WSA (OR-3-53)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 23,500 acres would protect and enhance existing wilderness values.</td>
<td>Wilderness designation of 23,500 acres would protect and enhance existing wilderness values. Acquisition of 1,000 acres of mineral estate would further protect wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 6,500 acres (almost 28 percent) of the WSA, with further declines from other potential uses in the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy development is expected. Production from two projected jasper mines would be foregone.</td>
<td>No impact on energy development is expected. Production from three projected jasper mines would be foregone.</td>
<td>There would be no impact on energy development. Projected development of three projected jasper mines would occur.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Riparian vegetation would improve along 6 miles of Dry Creek. Nine miles of ways would revegetate. Noxious weeds would continue to invade some poor condition sites. Little or no change would occur over the rest of the area.</td>
<td>Riparian vegetation would improve along 6 miles of Dry Creek. Nine miles of ways would revegetate. Noxious weeds would continue to invade some poor condition sites. Little or no change would occur over the rest of the area.</td>
<td>Riparian vegetation would improve along 6 miles of Dry Creek. Crested wheatgrass would replace native vegetation on 2,500 acres. Vegetation would be removed on 26 acres. Noxious weeds would be controlled on 150 acres.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA and enhanced along 6 miles of Dry Creek and in the vicinity of closed ways.</td>
<td>Wildlife habitat and populations would be enhanced throughout the WSA.</td>
<td>Fifteen acres of wildlife habitat would be eliminated and 3 miles of riparian habitat would be damaged, displacing or reducing populations of redband trout, mule deer and non-game birds. Six miles of riparian habitat would be improved, enhancing populations of redband trout, mule deer and non-game birds. Diversity of forage and cover would be reduced on 2,500 acres.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.</td>
<td>Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.</td>
<td>Water quality would improve along 6 miles of Dry Creek and would continue to decline in the more accessible portions.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would continue at approximately 2,939 AUMs. A potential allocation increase of 500 AUMs would be foregone as would improved livestock distribution. The use of 9 miles of ways for livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators.</td>
<td>Livestock use would continue at approximately 2,939 AUMs. A potential allocation increase of 500 AUMs would be foregone, as would improved livestock distribution. The use of 9 miles of ways for livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators.</td>
<td>An additional allocation of 500 AUMs would be realized. Livestock distribution would be improved.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area's overall recreation use level would increase from approximately 600 visitor days per year to approximately 700 visitor days per year.</td>
<td>The area's overall recreation use level would increase from approximately 600 visitor days per year to approximately 900 visitor days per year.</td>
<td>The area's overall recreation use level would decrease from approximately 600 visitor days per year to approximately 400 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $1,200.</td>
<td>Annual local personal income would increase by approximately $3,600.</td>
<td>Annual local personal income would increase by approximately $3,600.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Dry Creek WSA (OR-3-53)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold/Silver/Mercury</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Optical Calcite</td>
<td>Entire WSA</td>
<td>H</td>
<td>D</td>
</tr>
<tr>
<td>Semiprecious gem stones</td>
<td>Entire WSA</td>
<td>H</td>
<td>D</td>
</tr>
<tr>
<td>Perlite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
</tbody>
</table>

**Legend:**

**Level of Potential**
- O - No indication for accumulations of energy/mineral resource
- L - Low potential for accumulations of energy/mineral resource
- M - Moderate potential for accumulations of energy/mineral resource
- H - High potential for accumulations of energy/mineral resource

**Level of Certainty**
- A - Insufficient data or no direct evidence
- B - Indirect evidence available
- C - Direct evidence but quantitatively minimal
- D - Abundant direct and indirect evidence

### Table 4. Existing Livestock Use, Dry Creek WSA (OR-3-53)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wallrock (No. 0405)</td>
<td>8,546</td>
<td>04/01-03/31</td>
<td>13</td>
<td>983</td>
</tr>
<tr>
<td>Freezeout (No. 0404)</td>
<td>11,655</td>
<td>04/01-10/31</td>
<td>16</td>
<td>1,956</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,201</strong></td>
<td></td>
<td></td>
<td><strong>2,939</strong></td>
</tr>
</tbody>
</table>

<sup>1</sup> Increase might or might not result in increased licensed use in the allotment (see narrative).
<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>+500</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>Number</td>
<td>+1</td>
<td>No Change</td>
<td>+3</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+100</td>
<td>+300</td>
<td>-200</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>+6,000</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>$</td>
<td>Unknown</td>
<td>0</td>
<td>+6,000</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+1,200</td>
<td>+3,600</td>
<td>-2,400</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+1,200</td>
<td>+3,600</td>
<td>+3,600</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private
- BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management

Vale District
Dry Creek WSA
OR-3-53

LAND OWNERSHIP

MAP 2
Wilderness Study Area Boundary

Boundary of Adjacent Wilderness Study Areas

Recommended Suitable for Wilderness

Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness

U.S. Department of the Interior
Bureau of Land Management
Vale District

Dry Creek WSA
OR-3-53

ENHANCED ALTERNATIVE
Dry Creek WSA, OR-3-53. Along northern boundary looking southeast down Freezeout Creek Canyon (some private land shown on the right). Within area recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. Dry Creek Canyon is visible in the middleground and Dry Creek Buttes WSA (OR-3-56) is visible along the horizon. September 1983.

Dry Creek WSA, OR-3-53. North central boundary area looking west up Dry Creek Canyon (cabin and corrals are not in the WSA). Within area recommended suitable under the enhanced alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Dry Creek Buttes Wilderness Study Area (OR-3-56)

1. Introduction

General Description of Study Area

The Dry Creek Buttes Wilderness Study Area (WSA) is located in Malheur County, 30 miles southwest of Vale and U.S. Highway 20. The WSA parallels the west side of Owyhee Reservoir for over 20 miles (see Map 1).

The WSA contains 51,800 acres of public land, including three parcels (totaling 1,920 acres) of split-estate land (see Map 2).

The northwestern and western boundaries are formed by approximately 23 miles of high standard or maintained dirt roads and 2 miles of substantially noticeable ways. Two dead-end roads, approximately 1 mile each, penetrate the WSA in the Sand Hills area and form part of the western boundary. The southern and eastern boundaries are formed by approximately 32 miles of Bureau of Reclamation lands and 2 miles of private land.

The WSA is a rugged area of varied terrain. Numerous gulches and ravines cut through the landscape, ultimately draining into Owyhee Reservoir. The result is a complex pattern of twisting drainages separated by hills and ridges of varying steepness and height. Rock outcrops and rimrock are scattered throughout the WSA, but are especially prevalent along Owyhee Reservoir and at the WSA’s southern end.

Major physical features in the WSA are Red Butte, Dry Creek Buttes, Sand Hills, North and South Table Mountain, and Nannys Nipple. Acton Gulch, Deadman Gulch, and an unnamed 4-mile-long drainage 2 miles south of Deadman Gulch, which contains several small waterfalls, are the area’s major drainages.

The WSA’s southern half is much more rugged than the northern half. The landscape is more dissected, and the drainages are usually more incised. The highest concentration of pinnacles and rock outcroppings occur in the south. Typical vegetation in the WSA is sagebrush and bluebunch wheatgrass.

Interrelationships

The Dry Creek WSA (OR-3-53) is adjacent to the northwest boundary of this WSA for approximately 6 miles. The two WSAs are separated by a road. Located on the east side of the Owyhee Reservoir, across from Dry Creek Buttes WSA, are four additional WSAs: Upper Leslie Gulch WSA (OR-3-74), Slocum Creek WSA (OR-3-75), Honeycombs WSA (OR-3-77A) and Wild Horse Basin WSA (OR-3-77B).

In order to protect fragile soils, geologic features and wildlife habitat, 17,600 acres in the southern portion of the WSA have been designated an off-road vehicle (ORV) closure. The ORV closure includes North Table Mountain, South Table Mountain, Red Butte and the area surrounding these landmarks.

Adjacent to the WSA on the east and north is land managed by the Bureau of Reclamation in conjunction with its administration of Owyhee Reservoir. Numerous recreational cabins on leased sites are located on this adjacent land. The cabins to the east are reached only by boat. These cabins are located on both sides of the Owyhee Reservoir along a 12-mile stretch and are generally within 1.5 miles of the WSA boundary.

The State of Oregon Aeronautics Division maintains an airstrip near the mouth of Deadman Gulch, at Pelican Point, just outside of the WSA’s east-central boundary and adjacent to the Owyhee Reservoir on land administered by the Bureau of Reclamation. The Division intends to maintain the airstrip, an action which could involve improvement and use of the way across the WSA down Deadman Gulch. The way
currently is not maintained. The Division believes that barging maintenance equipment to the airstrip via the reservoir or transporting it by horses or aircraft is not very practical, although not infeasible.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains approximately 3,026-square-miles of land area. The WSA supports yearlong populations of approximately 300 mule deer, 30 antelope and 20 California bighorn sheep. The ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. The WSA’s Red Butte California bighorn sheep herd was established in 1987. It is currently managed to maximize herd growth, thus no harvest is permitted. California bighorn sheep is a Federal candidate species for listing under the Endangered Species Act. Northern bald eagles pass through the area on migrations and some remain throughout the winter months if open water conditions persist on Owyhee Reservoir. The northern bald eagle is currently listed as a threatened species in Oregon under the Endangered Species Act.

The proposed action for this WSA conflicts with ODFW game management goals by allowing projected development of mineral resources in the vicinity of Red Butte, thereby displacing and possibly reducing the population of California bighorn sheep, rather than maximizing herd growth.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for the WSA include:

- impact on wilderness values,
- impact on energy and mineral exploration and development,
- impact on motorized vehicle use of the Deadman Gulch way for maintenance of the Pelican Point airstrip (under each alternative, any authorized motor vehicle use of the Deadman Gulch way would require rehabilitation of the way to its pre-existing condition upon completion of required airstrip maintenance),
- impact on special interest plants,
- impact on California bighorn sheep, mule deer, pronghorn antelope, northern bald eagles, various reptiles and other wildlife species,
- impact on livestock grazing and management, and
- impact on recreation use levels.

The following topic was also considered but was not analyzed for this WSA because its environmental significance or concern was not major to the decision process:

- impact of projected development of existing claims on wilderness and other resource values: such actions are not BLM actions nor are they a function of the alternatives. Projected development of the claims assumes that they would possess valid existing rights. As such, development could occur whether or not the area is designated wilderness.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State, and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- no wilderness/no action (proposed action)

An alternative which would combine this WSA with the adjacent Dry Creek WSA and the four WSAs across the reservoir is not analyzed. Dry Creek Buttes WSA is separated from Dry Creek WSA by a major road and from the other four WSAs by the Owyhee Reservoir. It would not be feasible to close
the major road because it provides the primary access to a large area west of the Owyhee Reservoir. The reservoir and adjacent land are managed by the Bureau of Reclamation and are not subject to wilderness consideration.

An enhanced wilderness alternative, which would designate all of the WSA as wilderness and propose acquisition of the mineral estate on the three split-estate parcels, is not analyzed because the impacts of management actions under this alternative would not be significantly different from those analyzed under the all wilderness alternative.

A partial alternative is not analyzed because the conflict with mineral potential, which is the only major resource conflict in the WSA, would not be resolved by recommending only a part of the WSA as suitable for wilderness.

All Wilderness

Under the all wilderness alternative, 51,800 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the mineral estate of the three split-estate parcels would not be acquired. The two dead-end roads would not be closed.

Energy and Mineral Development Actions

Wilderness designation would close 49,880 acres of public land within the WSA to mineral entry. A total of 1,920 acres of split-estate lands would be open to mineral exploration and development.

Exploration for energy resources (including oil and gas, which have moderate potential for occurrence throughout the WSA) and uranium (which has moderate potential for occurrence on approximately 9,660 acres in the southwestern portion of the WSA) would be prohibited on 49,880 acres. Due to the lack of direct evidence indicating favorability, an absence of confirmed petroleum-bearing formations, and the relatively thick volcanic cover, only casual non-surface disturbing exploration (with no development) is postulated for oil and gas on the 1,920 acres of split-estate lands. As there is no direct evidence indicating favorability, and an absence of confirmed deposits, only casual non-surface disturbing exploration (with no development) is postulated for uranium on the 640-acre parcel of split-estate land in the southwestern portion of the WSA.

Exploration for mineral resources (including gold and silver, which have high potential for occurrence) and zeolite and optical calcite (which have moderate potential for occurrence) would be prohibited on 49,880 acres. Mineral exploration and development could occur on 117 mining claims located in the northeastern and southwestern portions of the WSA and on 1,920 acres of split-estate land. Exploration for gold/silver and optical calcite (which is an indicator of gold/silver mineralization) is postulated to occur on 28 lode mining claims and 320 acres of split-estate land, both in the northeastern portion of the WSA. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to 50 core holes (15 holes on the split-estate parcel) and may disturb 11 acres (4.5 acres on the split-estate parcel), including 6.5 miles of new road construction (3 miles on the split-estate parcel). The discovery and development of an economic gold/silver deposit on the mining claims is postulated. The operation would result in an estimated 400 acres of surface disturbance for an open-pit mine and milling/leaching complex. The surface disturbance would also include upgrading 4 miles of previously constructed exploration road to a 30-foot width. Exploration and development for gold/silver and optical calcite could also occur on the 89 lode mining claims located in the southwestern portion of the WSA. However, since these claims contain no known developable mineral resources, only casual non-surface disturbing exploration (with no development) is postulated.

Exploration for gold/silver is also postulated to occur on the 640-acre parcel of split-estate land in the southwestern portion of the WSA. This effort will most likely consist of surface examination and sampling, followed by the drilling of three core holes. Surface disturbance resulting from this exploration effort is postulated to total some four acres of surface disturbance, including 3 miles of new road construction. The discovery of an economic gold/silver deposit is not anticipated and no development is postulated.

Exploration for zeolites is postulated to occur on the 1,920 acres of split-estate lands. This effort would most likely consist of surface examination and sampling, followed by trenching/bulk sampling. These tests would involve up to two trenches (one in the southwestern portion of the WSA and one in the northeastern portion of the WSA), and would disturb two acres, including 1.5 miles of new road construction. The discovery of an economically mineable deposit is not expected and no development is postulated.
Due to the lack of direct geologic evidence indicating favorability and no known deposits, only casual non-surface disturbing exploration (with no development) is postulated for bentonite on the 1,920 acres of split-estate lands.

Total surface disturbance resulting from energy and mineral exploration and development is postulated to be 400 acres (including 4 miles of new road construction) for development, and 17 acres (including 7 miles of new road construction) for exploration.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 2,241 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management on 8 miles of ways would be precluded. Management of livestock and maintenance of 4 miles of fence and a corral would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the Dry Creek Buttes reservoir. Access to the reservoir would be via a 1-mile closed way.

Recreation Management Actions

The entire 51,800 acres of public land would be closed to motorized vehicle use. Presently, vehicle designations exclude motorized vehicles from 17,600 acres in the southern portion of the WSA and limit them to 8 miles of existing ways and 2 miles of dead-end roads in the northern portion of the WSA. Current recreational use is estimated to be 1,000 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All 51,800 acres of public land in the WSA would be open to mineral exploration and development.

Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum-bearing formations, a relatively thick volcanic cover, and an absence of mineral leases, only casual non-surface disturbing exploration (with no development) is postulated for oil and gas (which have moderate potential for occurrence throughout the WSA). Also due to a lack of direct evidence indicating favorability and an absence of known deposits, only casual non-surface disturbing exploration (with no development) is postulated for uranium (which has moderate potential for occurrence on 9,660 acres in the southwestern portion of the WSA).

Exploration is postulated to occur for gold and silver (which have high potential for occurrence) and optical calcite, as an indicator of gold/silver mineralization, (which has moderate potential for occurrence). This effort would most likely consist of surface examination and sampling, followed by core drilling, probably in the northeastern and southwestern portions of the WSA (in the areas where the existing mining claims are concentrated). These tests may involve up to 200 core holes (50 in the northeast and 150 in the southwest) and may disturb 52 acres (11 acres in the northeast and 41 acres in the southwest), including 33.5 miles of new road construction (6.5 miles in the northeast and 27 miles in the southwest).

The discovery of two economic gold/silver deposits (one in the northeastern portion of the WSA and one in the southwestern portion of the WSA) is postulated and they would be developed. The operations would involve approximately 1,000 acres of surface disturbance for two open-pit mines and milling/leaching complexes (600 acres in the southwest and 400 acres in the northeast), including 4.5 miles of upgrading previously constructed exploration roads to a 30-foot width (4 miles in the northeast and 0.5 miles in the southwest).
Exploration for zeolites is postulated to occur. This effort would most likely consist of surface examination and sampling, followed by trenching/bulk sampling. These tests may involve up to three trenches (one in the northeast and two in the southwest) and may disturb three acres, including 2.5 miles of new road construction. The discovery of an economically mineable deposit is not expected and no development is postulated.

Due to a lack of direct geologic evidence indicating favorability and no known deposits, only casual non-surface-disturbing exploration (with no development) is postulated for bentonite which has moderate potential for occurrence.

Total surface disturbance resulting from energy and mineral exploration and development is postulated to be 55 acres (including 31.5 miles of new road construction) for exploration, and 1,000 acres (including 4.5 miles of new road construction) for development.

**Wildlife Habitat Management Actions**

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

**Livestock Management Actions**

Livestock use would remain at the current use level of approximately 2,241 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Two reservoirs would be built to improve livestock distribution.

Vehicle use for livestock management and maintenance of 4 miles of fence and three reservoirs would continue to take place on 8 miles of existing ways. The ways are used 20 to 25 times per year to check livestock, spread salt and maintain facilities.

**Recreation Management Actions**

Motorized vehicle use would continue to be restricted by vehicle designation to the 8 miles of existing ways in the northern portion of the WSA, and excluded from 17,600 acres in the southern portion of the WSA. Current recreational use is estimated to be 1,000 visitor days per year.

**Summary**

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

**3. Affected Environment**

This section discusses only those major environmental conditions that describe the character of the WSA, or that may be affected by the alternatives.

**Wilderness Values**

**Naturalness**

The WSA appears to be generally natural. Fifteen interior, unnatural features, influencing approximately 3,600 acres (seven percent) of the WSA, are scattered throughout the area. These features include two fences totaling 4 miles, a reservoir, two wildlife water guzzlers, two old abandoned horse traps, a corral, a rock wall segment, two sheepherder monuments and several ways totaling 8 miles.

**Opportunities for Solitude or Primitive and Unconfined Types of Recreation**

The major reason the area offers outstanding opportunities for solitude is the rugged and diverse topography. On the basis of landscape differences, the WSA can be divided into three portions: incised "badlands" in the south; hilly terrain with a series of broken ridges and drainages in the north; and gently rolling to flat terrain in the Sand Hills area in the west. Of the three, the Sand Hills is the only portion without good topographic screening. The southern portion provides the most topographic screening and offers the greatest number of secluded locations.

The WSA's relatively large size and numerous travel corridors help to disperse use and contribute substantially to outstanding opportunities for solitude. Although scenic and geologic attractions might concentrate users in the southern portion of the WSA, this
section contains rugged terrain with abundant topographic screening. The WSA has little vegetative screening.

Due to its large size and geologic features, the WSA provides a challenging setting for primitive and unconfined recreation. Day hiking, backpacking, photography, and sightseeing opportunities are outstanding. There are also opportunities for hunting, horseback riding, bird watching and wildlife observation.

Special Features

The Deer Butte Formation is an excellent example of sandstone and shale strata. Other geologic formations and landmarks found within the WSA include Rooster Comb, Red Butte and Sand Hills.

Two plant species of special interest, Astragalus solitarius (weakstemmed milkvetch) and Astragalus sterilis (sterile milkvetch), occur in the WSA. These are Federal candidate species for listing under the Endangered Species Act.

A herd of California bighorn sheep, a Federal candidate for listing under the Endangered Species Act, occupies the Red Butte area of the WSA. Northern bald eagles, Federally listed as threatened in Oregon under the Endangered Species Act, winter on the Owyhee Reservoir (see the Wildlife section for more information). The WSA also provides excellent reptile habitat.

The southern portion of the WSA offers outstanding scenery due mainly to the interesting variety of land forms and vivid color combinations.

Three paleontologic sites are located in the southwestern portion of the WSA and six additional sites are located immediately adjacent to the WSA. During excavations in 1960 and 1961, 36 species of fossilized mammals dating to the Late Miocene were found. Species found included rabbit, horse, bear, camel and antelope.

There are opportunities for educational and scientific study of the area's geology, wildlife and distinctive ecological interrelationships. Talus slopes and rock outcrops offer shelter to small mammals, while birds use cliffs and spires for roosts and nesting sites. Cracks and cavities may harbor bats and other animals. Clay cliffs and luffaceous ash deposits found north and west of Red Butte could have unique soil properties favoring unusual plant species.

Vegetation on the tops of the larger buttes and mesas (Red Butte and North and South Table Mountain) is nearly pristine because the steep slopes and rimrocks make the tops nearly inaccessible to livestock.

Refer to Map 4 for locations of special features.

Diversity of the National Wilderness Preservation System

Based on the Bailey-Klichler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass community and alkaline vegetative mosaic with representative communities including greasewood, shadscale, saltgrass and hopsage types.

Boise, Idaho is the one standard metropolitan statistical area with population over 100,000 within five hours' driving time of the WSA.

Energy and Minerals

Energy and mineral resources were evaluated from available geologic data supplemented by a limited amount of reconnaissance geochemical stream sediment and rock chip sampling conducted by geologists from the Oregon Department of Geology and Mineral Industries (DOGAMI). Technical details of this evaluation are contained in DOGAMI'S "Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon." This report and heavy mineral data submitted by Barringer Resources, Inc. were used by BLM personnel to re-evaluate the area.

The entire WSA has been nominated as an Area of Critical Mineral Potential (ACMP). An ACMP is an area that has been nominated by members of the public as having mineral potential that is important to the local, regional or national economy, or that could become important in the future.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals and the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.
Table 3 shows the energy and mineral classification for the WSA. Map 3 shows where energy and mineral resources have moderate or high potential for occurrence in the WSA.

Surface geologic material found in the WSA consists largely of Late Tertiary volcanoclastic and clastic fluviatile and lacustrine rocks, with lesser amounts Late Tertiary olivine basalt flows and intrusions and Late Tertiary-Quaternary olivine basalt flows and minor local interbeds of volcanoclastic rocks. No pre-Tertiary rocks are known to be exposed in the WSA and it is not known what underlies the Late Cenozoic volcanic cover. However, Mesozoic and Paleozoic marine sediments, which crop out to the north in the southern Blue Mountains and dip to the south, are inferred to underlie the area.

**Energy Resources**

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of pre-Tertiary marine sediments at depth and the fact that the WSA is situated within a sedimentary basin.

Also based on indirect evidence (i.e., anomalous values obtained during geochemical stream sediment and rock chip sampling), an estimated 9,660 acres in the southwestern portion of the WSA (as depicted on Map 3) are considered to have moderate potential for the occurrence of uranium.

As of October 16, 1987, there were no oil and gas leases in the WSA.

**Mineral Resources**

No confirmed mineral deposits have been found in the WSA. However, gold and silver are known to occur throughout the WSA, with fairly substantial occurrences located near Red Butte in the southwestern portion of the WSA and Dry Creek Buttes area in the northeastern portion of the WSA. Therefore, based on this direct evidence, the entire WSA is considered to have high potential for the occurrence of gold/silver. Silver is a strategic and critical mineral, however there are no known deposits in the WSA.

Based on direct evidence, the entire WSA is considered to have moderate potential for the occurrence of optical calcite and zeolites due to their known occurrences and the presence of similar rock types throughout the WSA.

Based on indirect evidence, i.e., inferred presence and favorable rock types (tuffaceous lacustrine sediments), the entire WSA is considered to have moderate potential for the occurrence of bentonite.

As of October 16, 1987, there were 117 mine claims located in the WSA (all of them post-FLPMA). The majority of them (89) are situated around Red Butte, in the southwestern portion of the WSA. The remaining claims (28) are situated in the Dry Creek Buttes area, in the northeastern portion of the WSA. They may possess "valid existing rights" and, therefore, could possibly be developed after wilderness designation.

**Vegetation**

Predominant vegetation throughout the WSA consists of an overstory of big sagebrush with an understory of grasses and forbs. The potential natural community is Wyoming big sagebrush/bluebunch wheatgrass. Vegetation at the potential natural community occurs on isolated mesa tops, such as North and South Table Mountain and Red Butte, which are either ungrazed or have been very lightly grazed. Most vegetation in the WSA is in mid- to late seral stage.

Because of many distinctive geological formations and soils in the WSA, there are extensive pockets of other vegetation types. In the north to mid-western portion, sand hills support greasewood, spring hopsage and other salt desert flora. Stands of bitterbrush with Indian ricegrass and needle-and-thread grass also occur in this area. Scattered throughout the northern, central and eastern portions of the WSA are bands of exposed substrate nearly devoid of vegetation except for certain buckwheats, a yellow daisy, purple sage and bitterbrush. Two plant species of special interest in the WSA are *Astragalus solitarius* (weakstemmed milkvetch) and *Astragalus sterilis* (sterile milkvetch). These are Federal candidate species for listing under the Endangered Species Act.

**Wildlife**

Most wildlife habitat in the WSA is in good to excellent condition. Approximately 300 mule deer, 30 pronghorn antelope and 20 California bighorn sheep occupy the area. California bighorn sheep is currently a Federal candidate for listing under the Endangered Species Act.

Cliffs, spires and rimrock areas are attractive to birds of prey and a variety of nongame species. Small communities of common rodents, carnivores and fur
bearers typical of the intermountain region occur throughout the area. Upland game birds common in the area include chukar, California quail and mourning dove. Northern bald eagles pass through the area during their annual spring and fall migrations, and twenty to thirty eagles winter on the Owyhee River and Reservoir as long as open water persists. Northern bald eagles are currently listed as a Federal threatened species in Oregon under the Endangered Species Act.

Notable reptiles using the WSA’s excellent habitat include leopard, western fence, northern side blotched uta, sagebrush, western whiptail, desert and collared lizards, and western ground Great Basin rattler, gopher, yellow bellied racer, striped whip and desert night snakes.

Watershed

There are no perennial waters within the WSA.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 4 miles of fence, a reservoir and a corral.

Livestock operators use motor vehicles on 8 miles of ways approximately 20 to 25 times per year to inspect and maintain fences and reservoirs, check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to extensive portions of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

Most recreation occurs during the deer and chukar-hunting seasons and the summer boating and fishing seasons. Most of this use is not vehicle oriented. Vehicle use in the northern portion of the WSA is restricted to the two existing dead-end roads and five ways which penetrate the WSA. The southern portion of the WSA has no ways and is closed to motor vehicles. A considerable amount of primitive recreation use is associated with the Owyhee Reservoir, which attracts many people to the area. Some of the boaters and anglers on the reservoir take advantage of the WSA’s primitive recreation opportunities such as day hiking, sightseeing and photography. There is also some rockhounding occurring in the WSA.

Current recreation use in the WSA is approximately 1,000 visitor days per year.

Local Personal Income

Livestock use at the current level of 2,241 AUMs and recreation use totaling 1,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $26,892 for livestock grazing and $12,000 related to recreation use of the WSA, for an overall total of $38,892. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 51,800 acres.
Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

All 51,800 acres of the WSA would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including two special interest plant species, two special interest animal species, high scenic values and nearly pristine islands of vegetation would also be protected.
Naturalness

The WSA's naturalness (about 93 percent is presently not influenced by internal unnatural features) would be enhanced by prohibiting motorized use. Closure of 8 miles of five ways which influence approximately 2,000 acres (slightly less than four percent of the WSA) would allow the ways to naturally revegetate. Within three to five growing seasons, revegetation would make the ways substantially unnoticeable. Approximately 2 miles of the way leading to Dry Creek Buttes Reservoir in the northeastern portion of the WSA may receive periodic use every 5 to 10 years in order to provide heavy equipment maintenance of the reservoir. This infrequent use would not prevent revegetation of the way.

Solitude

Opportunities for solitude would be improved through the elimination of motorized use on 8 miles of five ways. Vehicles would be limited to the boundary roads, where they would continue to influence solitude within a narrow strip at the WSA's edge, or in the case of the two 1-mile road segments which penetrate the WSA in the Sand Hills area, within a narrow corridor associated with each road. Periodic maintenance activities at the Dry Creek Butte Reservoir would cause local short-term disturbance to solitude opportunities for wilderness visitors once every 5 to 10 years.

Outside sights and sounds, including boating on the Owyhee Reservoir and activities at cabin sites along the reservoir, could disturb solitude opportunities along the eastern margins of the WSA.

Primitive and Unconfined Recreation

Closure of five ways, totaling 8 miles, to motorized use would increase opportunities for primitive recreation activities such as hiking, backpacking, horseback riding, hunting, camping, photography and sightseeing. Removal of vehicles and rehabilitation of the ways would improve the quality of these activities by providing a more natural, primitive, wild setting.

Special Features

Eliminating vehicle use on 8 miles of five ways would reduce minor vehicle disturbances of northern bald eagles and other wildlife species, and would reduce the impairment of scenic vistas.

Conclusion: Wilderness designation of the entire 51,600 acres within the Dry Creek Buttes WSA would protect and enhance existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 49,880 acres of public land within the WSA to mineral entry. A total of 1,920 acres on three parcels of split-estate land would be open to mineral exploration and development.

Energy Development

Exploration for energy resources, including oil and gas, and uranium would be precluded on 49,880 acres. Due to the lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface disturbing exploration (without development) for oil and gas is postulated on the 1,920 acres of split-estate lands and for uranium on the 640-acre parcel of split-estate land located in the southwestern portion of the WSA.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration for mineral resources (including gold and silver, optical calcite, zeolites and bentonite) would be precluded on 49,880 acres. As a result of wilderness designation, production from one gold/silver open-pit mine would be foregone.

Exploration for gold/silver and optical calcite, involving 18 core holes, is postulated to occur on split-estate lands (15 core holes in the northeastern portion of the WSA and three in the southwestern portion of the WSA). The discovery of economic mineral deposits on the split-estate lands is not anticipated and no development is projected. The development of one open-pit gold/silver mine is projected to occur in the northeastern portion of the WSA, on existing lode mining claims.

Exploration for zeolites, involving the digging of two trenches/bulk sample sites, is postulated to occur on split-estate lands (one in the southwest and one in the northeast). The discovery of economically-mineable deposits is not expected and no development is postulated.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development project, only casual non-surface-disturbing exploration (without development) is postulated for bentonite on the 1,920 acres of split-estate lands.
**Conclusion:** Wilderness designation would result in foregone production from one gold/silver mine. Production would occur from one projected gold/silver mine on existing claims.

**Impacts on Vegetation**

Under this alternative, little or no change would take place to vegetative composition or ecological status over most of the WSA because current grazing practices would continue.

Eight miles of ways, once closed to vehicles, would naturally revegetate within three to five years.

**Conclusion:** Eight miles of ways would revegetate. Little or no change would occur to vegetation over the rest of the WSA.

**Impacts on Wildlife**

Wildlife habitat for approximately 300 mule deer, 20 California bighorn sheep, 30 antelope, northern bald eagles, upland game birds, numerous reptile species and nongame wildlife species would be maintained under wilderness designation. Wildlife habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s wilderness management policy. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plan goals.

The closure of 8 miles of existing ways would reduce minor vehicle disturbances of mule deer, northern bald eagles and other wildlife species.

**Conclusion:** Wildlife habitat and populations would be maintained throughout the WSA.

**Impacts on Livestock Grazing**

Livestock use would remain at the current level of approximately 2,241 AUMS.

Vehicle use for livestock management and facility inspection/maintenance on 8 miles of ways would be precluded under the all wilderness alternative. This would result in some inconvenience and slight additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of a reservoir. This periodic infrequent use would involve 2 miles of closed ways.

The construction of two reservoirs would be precluded, resulting in the foregone opportunity to improve livestock distribution.

**Conclusion:** Existing livestock use would remain at approximately 2,241 AUMS. The use of 8 miles of ways for day-to-day livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators. Improved livestock distribution would be foregone.

**Impacts on Recreation Use**

Closure of 8 miles of five ways would eliminate vehicle-based recreation in the WSA. However, this would have only a minor impact on recreation use levels because little motorized recreation occurs in the WSA.

As the public becomes aware of the area’s wilderness qualities and primitive recreation opportunities (particularly hiking, backpacking, camping, photography and sightseeing), increased visitation from wilderness users would more than offset the minor decreases from vehicle-based recreation. Hunting could continue on foot and horseback. Overall recreation use is projected to increase from the current level of approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.

**Conclusion:** Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.

**Impacts on Local Personal Income**

Livestock grazing would remain at 2,241 AUMS. Projected energy and mineral development would amount to one metallic mine. Overall recreation use would increase by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

**No Wilderness/No Action (Proposed Action)**

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 51,800 acres
Impacts on Wilderness Values

Under the no wilderness alternative, the entire 51,800 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features (including California bighorn sheep, high scenic values, buttes with nearly pristine vegetation, and special interest plant and animal species) would be subject to the effects of the projected management actions. Projected actions include mineral exploration and development, construction of two new livestock reservoirs and continued motorized vehicle use limited to existing ways in the northern part of the area and excluded from 17,600 acres in the southern portion of the WSA.

Naturalness

Continued vehicle use on 8 miles of five ways in the northern part of the WSA would maintain the impact of tracks upon naturalness on approximately 2,000 acres (slightly less than four percent of the WSA).

Site-specific mineral exploration activities would disturb the area's naturalness. Three projected exploration trench sites, 200 projected drilling sites and 36 miles of new access roads would cause approximately 55 acres (less than one percent of the WSA) of surface disturbance in the northeastern and southwestern portions of the WSA. In most locations, revegetation and reclamation would make the surface disturbance substantially unnoticeable within three to five years after cessation of exploration activities. In a few locations, where roads would cross steep slopes or highly-erodible soils, road cuts and other evidence of construction would result in long-term disturbance. Perhaps five acres of surface disturbance, visually influencing 300 acres, would be long term.

Development of two projected gold/silver open-pit mines and 4.5 miles of access roads would cause long-term disturbance of the area's naturalness. The mines would be in two locations: the northeastern portion of the WSA on existing claims, and the southwestern portion around Red Butte, the WSA's highest geophysical landmark. Development of these mines would cause about 1,000 acres of surface disturbance and visually influence approximately 41,000 acres (about 80 percent of the WSA). Some of the disturbance would overlap the approximate seven percent of the WSA presently influenced by existing unnatural features.

The large size of the area visually influenced by mineral development is due to several factors. The mines would be located on prominent features, easily visible from the surrounding area. The southern mine would cause about 600 acres of surface disturbance at Red Butte, including the butte's crest. The northeastern mine, which would cause approximately 400 acres of surface disturbance, would also be located on a hill higher than much of the surrounding country. Since there is little vegetative screening in the WSA, disturbance on these high points would visually influence an extensive area.

Construction of two proposed livestock reservoirs in the central part of the WSA would cause about 10 acres of surface disturbance and visually influence an estimated 200 acres.

Almost all of the WSA, except for portions of the central area and some of the steep east and south slopes facing the Owyhee Reservoir, would be influenced by projected management actions. In total, projected management actions would cause approximately 1,015 acres of long-term surface disturbance and would visually influence about 41,500 acres (80 percent of the WSA).

Solitude

Continued vehicle use on 8 miles of existing ways and human activity associated with mineral exploration and reservoir construction and maintenance would cause short-term, local impairment of solitude opportunities adjacent to the activity. These impacts, although individually localized, would occur mostly over large areas of the northern and southwestern portions of the WSA.

Human activity associated with development of the two gold/silver open-pit mines would greatly reduce opportunities to experience a sense of solitude in both the northeastern and southwestern portions of the WSA. The influence of the two mines would be extensive due to their locations on high elevation features where they would be highly visible and project noise over a large area. The lack of adequate vegetation to screen mining activities in the WSA would also contribute to their extensive influence.

Primitive and Unconfined Recreation

Continued vehicle use on the 8 miles of existing ways in the northern part of the WSA would continue to impair primitive recreation opportunities in the vicinity of these ways. In addition, increased vehicle use and human activity during mineral exploration and construction of the two proposed livestock reservoirs would cause minor, short-term disturbances of primitive, non-motorized recreation opportunities in the vicinity of access routes and work sites.
Development of two gold/silver open-pit mines and construction of their access road, would significantly detract from opportunities for primitive and unconfined recreation in the northeastern and southwestern portions of the WSA. During the operating life of the mines, wildlife would be displaced, vehicles and heavy equipment would travel the access roads, and the natural wild setting in these areas would be greatly disturbed.

Special Features

Continued vehicle use of the existing 8 miles of ways would maintain the minor vehicle disturbance of northern bald eagles and other wildlife species and would continue to impair scenic vistas.

Extensive mineral exploration activities would cause short-term disturbance of California bighorn sheep in the Red Butte area. Bighorn sheep would be displaced to adjoining suitable habitat until activities ceased and the disturbed areas (including all access roads) were rehabilitated.

Mineral exploration, especially in the highly scenic southwestern part of the WSA, would substantially reduce scenic quality until full reclamation was accomplished following exploration. Approximately 300 acres would probably continue to be influenced by exploration disturbances even after completion of reclamation activities.

A long-term reduction in scenic quality from the projected development of two open-pit gold/silver mines would occur over much of the WSA. The nearly pristine vegetation communities on Red Butte would be severely damaged. In addition, mine development would displace bighorn sheep and possibly cause some mortalities within the herd. Direct mortalities and habitat losses to reptiles and other small terrestrial wildlife species would also occur. Local populations would probably be eliminated or severely reduced due to habitat loss.

It is possible that mineral exploration and development could inadvertently destroy sites where special interest plant species occur. On-site examination of proposed activities would be necessary before the actual impact on these species could be determined. Monitoring and mitigation measures would be proposed to avoid serious impacts to the special interest plant species.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 41,500 acres (80 percent) of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

All of the 51,800 acres of public land in the WSA would be open to mineral exploration and development.

Energy Development

Due to a lack of sufficient geologic evidence to justify an extensive exploration program, only casual non-surface-disturbing exploration (without development) is postulated for oil and gas, and uranium.

Conclusion: There would be no impact on energy development.

Mineral Development

The development of two open-pit mines for gold/silver is projected to occur. One mine would be in the northeastern portion of the WSA and the other in the southwestern portion of the WSA.

Exploration for zeolites is projected to occur, involving three trenches/bulk sample points (one in the northeastern portion of the WSA and two in the southwestern portion of the WSA). The discovery of an economically-mineable deposit is not expected and no development is projected.

Due to the lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is projected for bentonite.

Conclusion: There would be no impact on mineral development. Production would occur from two projected gold/silver mines.

Impacts on Vegetation

Under the no wilderness alternative, mineral exploration would cause short-term disturbance of vegetation on approximately 55 acres. Development of two open-pit gold/silver mines would remove vegetation on approximately 1,000 acres and trampling of vegetation would probably occur around the mine sites. The nearly pristine vegetation on Red Butte would suffer heavy disturbance.

There is the possibility that mineral exploration and development activities would occur in areas where the
two special interest plant species grow. However, monitoring and mitigation measures would be proposed in order to avoid or minimize impacts to these plants.

Vegetation on approximately 10 acres would be removed with construction of two new livestock reservoirs, and approximately 40 acres around the new reservoirs would receive heavier vegetation utilization from increased livestock grazing. However, since grazing in the WSA takes place in winter, when grazing has little to no impact on mortality of bunchgrasses, no effect on composition of vegetation is anticipated around the new reservoir sites. Overall distribution of livestock would improve, resulting in a less grazed appearance around existing water sites.

**Conclusion:** Projected management actions would result in the removal of vegetation on approximately 1,010 acres. Nearly pristine vegetation on Red Butte would be heavily disturbed.

**Impacts on Wildlife**

Human activity and 55 acres of surface disturbance associated with projected mineral exploration would cause minor, short-term displacement of mule deer, bighorn sheep and other wildlife species.

Surface disturbance related to the projected development of two open-pit gold/silver mines would cause direct wildlife habitat losses on approximately 1,000 acres. Wildlife solitude and freedom from human disturbance would be eliminated on approximately 8,500 acres in the vicinity of the two mines. These disturbances would affect fewer than 100 mule deer, probably all of the bighorn sheep and few, if any, of the antelope. Mule deer normally using the area would be largely displaced to adjoining suitable habitat. Bighorn sheep would probably be displaced to somewhere nearby and could suffer mortalities related to stress since they are a small and recent transplant herd. Improved access resulting from new mining roads would increase the likelihood of poaching of bighorn sheep in an area previously inaccessible by vehicle.

Direct mortalities and habitat losses to small terrestrial wildlife species, such as leopard lizards and western whiptails, would also occur due to mine development. Local populations of nongame species would probably be eliminated or severely reduced due to habitat loss.

Wildlife habitat outside of the mine development areas would continue to be managed to support existing wildlife populations in accordance with ODFW management goals.

Construction of two reservoirs would provide additional late season water sources for game and nongame species. Due to the location of the proposed reservoirs, the benefits to wildlife would be relatively minor.

Continued vehicle use on existing ways would maintain their minor disturbance of wildlife in the vicinity of the ways.

**Conclusion:** Populations of mule deer, California bighorn sheep and small terrestrial wildlife species such as lizards would be displaced or reduced by 1,000 acres of direct habitat loss and increasing human disturbance on approximately 8,500 acres.

**Impacts on Livestock Grazing**

Current livestock use of 2,241 AUMs would be reduced by approximately 48 AUMs due to surface disturbance of approximately 1,000 acres by projected mineral development activities.

Livestock distribution within the WSA would be improved through the construction of two reservoirs.

Vehicle use for livestock management and inspection/maintenance of 8 miles of fence, three reservoirs and a corral would continue on 8 miles of ways.

**Conclusion:** Existing livestock use of 2,241 AUMs would decrease by 48 AUMs. Livestock distribution would be improved.

**Impacts on Recreation Use**

Motorized use would continue to be limited by vehicle designation to 8 miles of existing ways in the northern portion of the WSA and would continue to be excluded from 17,600 acres in the southern part of the WSA.

Surface disturbance, impairment of scenic vistas and displacement of wildlife by mineral exploration and development would cause significant disturbance of the natural setting over 80 percent of the WSA. The quality of, and opportunities for, recreation activities such as hunting, hiking, backpacking and photography would be reduced. Mortality losses to California bighorn sheep in the Red Butte area due to mineral development could jeopardize future opportunities for hunting this prized big game species. Due to the extensive impact of projected mineral exploration and...
development, there would be a long-term decline in primitive recreation opportunities in the WSA. Overall recreation use is projected to decrease from the current level of approximately 1,000 visitor days per year to approximately 500 visitor days per year.

Conclusion: Overall recreation use would decrease from approximately 1,000 visitor days per year to approximately 500 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would decrease by 48 AUMs. Projected energy and mineral development would amount to two metallic mines. Overall recreation use would decrease by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net decrease of $6,576 per year, plus an unknown level of increase attributable to the projected energy and mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would decrease by approximately $7,000, with an unknown level of increase from projected mineral development.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), mineral exploration and development activities would lead to unavoidable adverse impacts to wilderness values as a result of 1,005 acres of long-term surface disturbance which would visually influence approximately 41,300 acres. Construction of two new livestock reservoirs would cause 10 acres of surface disturbance and would visually influence approximately 200 acres. Removal of forage by mineral development would likely result in livestock forage allocation reduction of 48 AUMs. Mineral development in the Red Butte area would cause possible mortalities in the California bighorn sheep herd.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, all short-term uses would continue and future development options, including projected mineral exploration and development, and range developments, would remain open. Long-term productivity of wilderness values would be directly lost on approximately 1,015 acres of the WSA from surface disturbance and indirectly lost on approximately 41,300 acres from visual disturbance, due to projected minerals development and construction of two livestock reservoirs. Further declines from other uses would be expected over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, projected mineral development would result in an irreversible commitment of the wilderness resource on 1,005 acres directly, with the natural character of the WSA compromised on approximately 41,300 acres from the visual influence of these developments. There would also be an irretrievable commitment of the mineral resource. Reservoir construction would directly reduce wilderness values by an additional 10 acres, and would indirectly influence wilderness values on approximately 200 acres.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

Due to its large size, configuration, diverse topography (particularly in the southern portion), and high degree of naturalness, the WSA would be manageable as wilderness. Several factors that could affect the manageability of the area as wilderness include three parcels (1,920 acres) of split-estate land and numerous mining claims in the WSA. Projected mineral exploration on the split-estate parcels and projected development of an open-pit mine on existing claims would make management as wilderness difficult in these areas.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action because of the major benefits to be gained by allowing projected management actions.
Projected actions include mineral exploration and development of two gold/silver mines. The entire WSA is rated as high potential for the occurrence of gold and silver, and as moderate potential for the occurrence of several other minerals. Although no development of the other minerals is expected at this time, development options would remain open.

Mineral exploration or development on split-estate parcels and 117 existing claims would make management as wilderness difficult in these areas. This would be especially true in the northeastern portion of the WSA, where an open-pit mine is projected on existing claims. Development of this mine could occur whether or not the area is designated wilderness.

This alternative would also allow the construction of two new livestock reservoirs, thereby improving livestock distribution.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and response to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: There is inadequate data on special features - the largest inland arch in Oregon. Response: BLM personnel have performed ground and air searches for this feature and it has not been located. Any information to fix its exact location would be appreciated.

Comment: There is inadequate wildlife data. It is incorrect that the value of the area is low for bighorn sheep. Response: The comment is correct. The Draft EIS was written before November 1986, when the Oregon Bighorn Sheep Management Plan was composed. Subsequently, the area was reevaluated as high priority for bighorn sheep habitat and animals have already been introduced at Red Butte.

Comment: There is inadequate vegetation data. There are eight endangered plant species. Response: Only two special interest species have been identified in the WSA. Both are Federal candidate species for listing under the Endangered Species Act. Refer to Section 3, Affected Environment: Vegetation, for further information.

Comment: There is inadequate data and analysis relating to minerals. Mineral (gold) development would require strip or open-pit mining with devastating impacts - too much harm, total loss. Response: The comment is correct in stating that open-pit mines would be required to develop mineral (gold) resources. The Final EIS contains expanded analysis of the impact of open-pit mines on wilderness and other resource values. Refer to Section 4, Environmental Consequences.

Comment: Combine this WSA with the Honeycombs WSA (3-77A). Response: This WSA is separated from 3-77A by the Owyhee Reservoir. The reservoir and adjacent land are managed by the Bureau of Reclamation and are not subject to wilderness review. Refer to Section 2, Description of Alternatives, for a discussion of alternatives considered but not analyzed.

Comment: Clearly state the WSA as an Area of Critical Mineral Potential (ACMP) as per EA OR-030-6-24. Response: As a result of this WSA being nominated by members of the public as an ACMP, the entire WSA is now considered an ACMP for gold.

Comment: Close the jeep trail to the airstrip. Equipment can be barged down the reservoir. Cost to maintain the airport is too high for use. Closure of the jeep road will protect the area from ORV use. Response: Presently, the jeep trail is impassable by vehicles. The State Aeronautics Division may request use of the Deadman Gulch way at a later date to maintain the airstrip. At the time of the request, reasonable alternatives and their respective impacts would be assessed. If motor vehicle use of the Deadman Gulch way is determined to be the least-imparing feasible alternative, rehabilitation of the way to its pre-existing condition could be stipulated upon completion of required airstrip maintenance.
**Table 1. Summary of Proposed Management Under Each Alternative, Dry Creek Buttes WSA (OR-3-56)**

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>51,800</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>34,200</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>49,880</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Decreased Forage Allocation to Livestock (AUMs)</td>
<td>0</td>
<td>48</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed: Reservoirs (number)</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

¹Under the current land use plan, 17,600 acres are already closed to vehicle use. Except for 8 miles of existing ways, the remaining acreage in the WSA is already closed to cross-country vehicle use through a "limited" ORV designation.

---

**Table 2. Summary of Environmental Consequences of Alternatives, Dry Creek Buttes WSA (OR-3-56)**

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 51,800 acres within Dry Creek Buttes WSA would protect and enhance existing wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 41,500 acres (80 percent) of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy development is expected. Wilderness designation would result in foregone production from one projected gold/silver mine. Production would occur from one projected gold/silver mine.</td>
<td>There would be no impact to energy or mineral development. Production would occur from two gold/silver mines.</td>
</tr>
<tr>
<td>Resource or Activity</td>
<td>All Wilderness</td>
<td>No Wilderness/No Action (Proposed Action)</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Eight miles of ways would revegetate. Little or no change would occur to vegetation over the rest of the WSA.</td>
<td>Projected actions would result in the removal of vegetation on approximately 1,010 acres. Nearly pristine vegetation on Red Butte would be disturbed.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA.</td>
<td>Populations of mule deer, bighorn sheep and small terrestrial wildlife species such as reptiles would be displaced or reduced by 1,000 acres of direct habitat loss and increased human disturbance on approximately 8,500 acres.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use would remain at approximately 2,241 AUMs. Use of 8 miles of ways for livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators. Improve live-stock distribution would be foregone.</td>
<td>Existing livestock use of approximately 2,241 AUMs would decrease by 48 AUMs. Livestock distribution would be improved.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.</td>
<td>Overall recreation use would decrease from approximately 1,000 visitor days per year to approximately 500 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $6,000.</td>
<td>Annual local personal income would decrease by approximately $7,000, with an unknown level of increase from projected mineral development.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Dry Creek Buttes WSA (OR-3-56)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, silver, mercury</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium</td>
<td>See Map 3</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Optical Calcite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

- O - No indication for accumulations of energy/mineral resource
- L - Low potential for accumulations of energy/mineral resource
- M - Moderate potential for accumulations of energy/mineral resource
- H - High potential for accumulations of energy/mineral resource

Level of Certainty

- A - Insufficient data or no direct evidence
- B - Indirect evidence available
- C - Direct evidence but quantitatively minimal
- D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Dry Creek Buttes WSA (OR-3-56)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wallrock (No. 0405)</td>
<td>8,546</td>
<td>11/01-4/01</td>
<td>7</td>
<td>613</td>
</tr>
<tr>
<td>Quartz Mountain (No. 0406)</td>
<td>5,586</td>
<td>11/01-4/01</td>
<td>29</td>
<td>1,628</td>
</tr>
<tr>
<td>Totals</td>
<td>14,132</td>
<td></td>
<td>2,241</td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Dry Creek Buttes WSA (OR-3-56) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGES IN RESOURCE OUTPUTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>-48</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>Number</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+500</td>
<td>-500</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>-576</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>$</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+6,000</td>
<td>-6,000</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+6,000</td>
<td>-6,576</td>
</tr>
</tbody>
</table>
BLM Land in WSA Studied Under Section 603 of FLPMA
Wilderness Study Area Boundary
Boundary of Adjacent Wilderness Study Areas
Bureau of Land Management
State
Private
BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management
Vale District
Dry Creek Buttes WSA
OR-3-56

LAND OWNERSHIP
**U.S. Department of the Interior**
**Bureau of Land Management**
**Vale District**

Dry Creek Buttes WSA  
OR-3-56

**MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES**

- **Moderate Potential (MB)** for Uranium
- Entire WSA: High Potential
- High Potential (HC) for Gold and Silver
- **Moderate Potential (MB)** for Oil/Gas and Bentonite
- **Moderate Potential (MC)** for Zeolite and Optical Calcite

**MAP 3**
Dry Creek Buttes WSA, OR-3-56. Southeastern portion of the WSA looking north across the “Badlands” toward South Table Mountain. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Dry Creek Buttes WSA, OR-3-56. Southwestern portion of WSA looking northeast toward Red Butte. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. July 1983.
Dry Creek Buttes WSA, OR-3-56. North-central portion of WSA looking northwest at basin between Dry Creek Buttes (some land from center to upper right is split-estate land). Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. Dry Creek Reservoir is near the center of the photo. September 1983.

Dry Creek Buttes WSA, OR-3-56. East-central portion of WSA looking west up Deadman Gulch. Area in foreground including road cuts are not within the WSA. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. Way going up Deadman Gulch is not passable by vehicle. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Owyhee Breaks Wilderness Study Area (OR-3-59)

1. Introduction

General Description of Study Area

The Owyhee Breaks Wilderness Study Area (WSA) is located in Malheur County, approximately 24 miles northwest of Jordan Valley and U.S. Highway 95 (see Map 1).

The study area is roughly oval-shaped. It is approximately 7 miles long, from 2 to 6 miles wide, and contains 13,380 acres of public land (see Map 2). Four 40-acre parcels of private property are scattered in the northern portion of the WSA. Two other private parcels inside the WSA, a 160-acre parcel spanning the Owyhee River at Greeley Bar, and a 40-acre parcel north of Greeley Bar, have been acquired by BLM. An 80-acre private parcel fronting on the Owyhee River and adjacent to the western portion of the WSA has also been acquired. These private parcels have been incorporated into the WSA.

The WSA is bordered on the south and southeast by high standard county dirt roads, on the northwest by a graded dirt BLM road and private property, and on the northeast by private property and public land administered by the Bureau of Reclamation. A portion of the study area's southwest corner also borders private property. Seven parcels of private property adjoin the WSA.

Most of the WSA (approximately 10,000 acres, 75 percent) is located in rugged, dissected badlands along the Owyhee River. This area is characterized by cliffs, outcrops, steep bluffs, dramatic erosional features, canyons, twisting gulches and ridgelines. The Owyhee River, flowing through the badlands, bisects the WSA. The southern 25 percent of the WSA is a gently rolling plateau overlooking the river approximately 1,700 feet below.

The most common plants in the WSA are sagebrush and grasses. Scattered junipers and chokecherry are found along Birch Creek and the Owyhee River. Some moist drainages also contain willows, alders and currants.

Interrelationships

The Owyhee Breaks WSA is adjacent to Blue Canyon WSA (OR-3-73) on the northeast, Jordan Craters WSA (OR-3-128) on the southeast, and Lower Owyhee Canyon WSA (OR-3-110) on the west. All four adjoining WSAs are separated by roads.

About 660 acres of the Jordan Craters Research Natural Area (RNA) and Area of Critical Environmental Concern (ACEC) are located in the southeast portion of the WSA (see Map 3).

The river corridor from rim to rim along the Owyhee River in the WSA (approximately 3,020 acres) is included in the Owyhee River ACEC. Management of the Owyhee River ACEC includes the following:

- limiting ORV use to designated roads and trails,
- erecting barriers and signs to deter ORV use and protect the fragile habitat,
- continuing river patrols during high use periods to monitor and prevent overuse which may damage the sensitive values, and
- conducting studies of river carrying capacity and then regulating river use to prevent damage to sensitive plants, fish and wildlife habitat.
Also, the portion of the Owyhee River flowing through the WSA is part of a 50-mile segment of the river that has been designated a wild river component of the National Wild and Scenic Rivers System. The Federal designation withdraws from mineral location and leasing all public lands within 0.25 mile on each side of the river (totaling 2,520 acres within the WSA).

Most of this stretch of river (all of it within the WSA) is also an Oregon State Scenic Waterway. The State designation provides some State control over private land use changes within 0.25 mile of the river. As a result of the acquisitions of private land within and adjacent to the WSA, no private land inside the WSA is affected by the State designation.

Management of the Owyhee National Wild River includes the following:

- establishing administrative and withdrawal (from mining and public entry) boundaries,
- establishing a level and degree of administrative control, including river management jurisdiction, recreation use permits, visitor use supervision, use monitoring, visitor education programs, restriction of watercraft, control of vehicle access and signing of access routes, and
- protecting natural and cultural resources.

Management and use restrictions affecting the RNA, ACEC and the Owyhee National Wild River designations would continue to apply within the WSA whether or not the area is designated wilderness.

The WSA is bordered on the northeast by about 1,750 acres of land administered by the Bureau of Reclamation in connection with their management of Owyhee Reservoir.

A portion of the WSA along the Owyhee River is part of a power site reserve, which earmarks the land for potential water power and water storage development. This "withdrawal" will be reviewed because of the wild river designation, which may lead to its revocation. Power site development is not foreseen and therefore not discussed further.

The WSA is located within the Oregon Department of Fish and Wildlife's (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports a yearlong population of approximately 100 mule deer and 20 antelope. ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Nongame species present include a wide variety and high density of raptors including golden eagles, prairie falcons and the northern bald eagle, which is a Federal threatened species in Oregon. The ODFW management goal for nongame wildlife is to maintain populations of naturally occurring species at self-sustaining levels. The Proposed Action for this WSA conforms with the ODFW management goals for game and nongame species.

Malheur County has not identified any conflicts between the Proposed Action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on private land inholdings (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on public access easements (as a result of acquisition attempts, this is no longer an issue),
- impact on energy and mineral exploration and development,
- impact on mule deer, antelope, northern bald eagles and other raptors,
- impact on livestock grazing use levels and management, and
- impact on recreation use levels.

The following topic was also considered, but was not analyzed for this WSA because its environmental significance or concern was not major to the decision process.

- impact of projected development of existing picture jasper claims on wilderness and other resource values: such actions are not BLM actions nor are they a function of the alternatives. Projected development of the claims assumes that they would possess valid existing rights. As such, development could occur whether or not the area is designated wilderness.
2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- proposed action
- no wilderness/no action

An enhanced alternative, which would recommend acquisition of the private inholdings, is not analyzed because the Proposed Action incorporates this recommendation. An alternative which would combine this WSA with adjacent WSAs is not analyzed because the roads separating them are needed for access to private property and existing facilities which can not be blocked off.

All Wilderness

Under the all wilderness alternative, 13,380 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the private inholdings remaining in the WSA would not be acquired. Seven ways totaling 4 miles in length would be closed.

Energy and Mineral Development Actions

Wilderness designation would close 10,860 acres of public land within the WSA to mineral entry (the remaining 2,520 acres of public land in the WSA along the Owyhee River, which is a wild river component of the National Wild & Scenic River System, have already been closed to mineral entry by Congressional action). A total of 160 acres of private inholdings would be open to mineral exploration and development at the landowners' discretion.

Exploration and development of energy resources would be prohibited on 13,380 acres. Due to a lack of geologic evidence indicating favorability, an absence of confirmed petroleum and/or geothermal formations and a relatively thick volcanic cover, only casual non-surface-disturbing exploration (with no development) is postulated for oil/gas and geothermal resources on the 160 acres of private land.

Exploration of mineral resources would be prohibited on 13,380 acres. Continued development of picture jasper, which has a high potential for occurrence based on abundant direct evidence on approximately 260 acres in the east-central portion of the WSA, is postulated to occur on five lode mining claims in this portion of the WSA. This effort would likely consist of blasting, sizing and removal of the jasper and would result in approximately five acres of surface disturbance, including 0.1 mile of new road construction. Due to a lack of direct evidence indicating favorability and an absence of confirmed mineral deposits, only casual non-surface-disturbing exploration (with no development) is postulated for bentonite and zeolites on the 160 acres of private land.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,399 AUMs within the portions of four allotments in the WSA. The season of use would remain as identified in Table 4 for the four allotments. Vehicle use for livestock management on 4 miles of ways would be precluded. One mile of fence would
be constructed to allow a change in livestock management to improve riparian vegetation on 3 miles of stream. Management of livestock and maintenance of 2 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three existing reservoirs.

Recreation Management Actions

The entire 13,380 acres of public land would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 4 miles of existing ways. River patrols would continue to monitor recreation activities on the Owyhee National Wild River during high use periods, usually from March through June. Annual recreation use levels on the Owyhee River vary according to water flow and length of the river floating season, but have shown an upward trend since 1974. Current total recreational use in the WSA is estimated to be 3,000 visitor days per year, although use drops considerably during drought years when low water prevents river float trips.

Proposed Action

Under the Proposed Action, 10,645 acres of public land would be recommended suitable as wilderness. Four 40-acre private inholdings would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of these parcels, the total area recommended suitable under this alternative would be 10,805 acres (see Map 4). Three ways totaling 0.5 mile in length would be closed.

This alternative would recommend 2,735 acres as nonsuitable for wilderness designation. The boundary would exclude gently rolling terrain above the Owyhee River canyon rim in the southern portion of the WSA. Vehicle use in this area would continue on 3.5 miles of ways, including the WSA's new southern boundary.

Energy and Mineral Development Actions

Wilderness designation would close 8,125 acres of public land within the WSA to mineral entry (an additional 2,520 acres of public land along the Owyhee River, which is a wild river component of the National Wild & Scenic Rivers System, are already closed to mineral entry by Congressional action). If acquisitions are successful, 160 acres of private land would also be closed to mineral entry. A total of 2,735 acres of public land recommended as nonsuitable for wilderness would be open to mineral entry.

Exploration of energy resources would be prohibited on 10,805 acres. Due to a lack of direct geologic evidence, an absence of confirmed petroleum and/or geothermal formations, a relatively thick volcanic cover and an absence of existing mineral leases, only casual non-surface-disturbing exploration (without development) is postulated for oil/gas and geothermal resources in the nonsuitable portion of the WSA.

Exploration and new development of mineral resources would be prohibited on 10,805 acres. Exploration for gold, silver and mercury, which have a moderate potential for occurrence based on direct evidence on approximately 6,000 acres in the central portion of the WSA (including a portion of the nonsuitable area), is postulated to occur on the southern (nonsuitable) portion of the WSA. This effort would most likely consist of surface examination and sampling, followed by the drilling of one gold/silver/mercury core hole, probably in the southwestern portion of the WSA. The resulting surface disturbance is estimated to be 0.5 acres, including 0.4 mile of new road construction. The discovery of an economic deposit is not expected and no development is projected.

Continued development of picture jasper, which has a high potential for occurrence based on abundant direct and indirect evidence on approximately 260 acres in the east-central portion of the WSA, is postulated to occur on five lode mining claims in the east-central portion of the WSA. This effort would likely consist of blasting, sizing and removal of the jasper and would result in approximately five acres of surface disturbance, including 0.1 mile of new road construction. Due to the lack of direct geologic evidence indicating favorability and a lack of confirmed mineral deposits, only casual non-surface-disturbing exploration (without development) is postulated for bentonite and zeolites in the nonsuitable portion of the WSA.

Total surface disturbance resulting from energy and mineral exploration and development is projected to be 5.5 acres, including 0.5 mile of new road construction.

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Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Grazing Management Actions

Livestock grazing use would continue at the current level of 1,399 AUMs in the portions of four allotments in the WSA. The season of use would remain as identified in Table 4 for the four allotments. One mile of fence would be constructed to allow a change of livestock management to improve riparian vegetation on 3 miles of stream. Vehicle use for day-to-day livestock management on 0.5 mile of way would be precluded. Management of livestock and maintenance of 2 mile of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain a reservoir.

In the portion of the WSA recommended nonsuitable as wilderness, vehicle use for livestock management and maintenance of the three existing reservoirs would continue on 3.5 miles of ways. The ways are used one to five times per year to check livestock, spread salt and maintain facilities.

Recreation Management Actions

The entire 10,805 acres recommended suitable as wilderness (assuming acquisition of 160 acres of private inholdings) would be closed to motorized vehicle use. Presently, vehicle use in the WSA is limited by vehicle designation to 4 miles of ways, including 0.5 mile of ways in the suitable area. On the 2,735 acres recommended nonsuitable as wilderness, vehicle designation would continue to limit motorized vehicles to 3.5 miles of existing ways.

River patrols would continue to monitor recreation activities on the Owyhee National Wild River during high use periods, usually from March through June. Annual recreation use levels on the river vary according to water flow and length of the river-floating season, but have shown an upward trend since 1974. Current total recreational use in the WSA is estimated to be 3,000 visitor days per year, although use drops considerably during drought years when low water prevents river float trips.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

A total of 10,860 acres of public land in the WSA would be open to mineral entry. A total of 2,520 acres of public land along the Owyhee River, which is a wild river component of the National Wild and Scenic River System, would remain closed to mineral entry.

Due to a lack of direct geologic evidence indicating favorability, an absence of confirmed petroleum and geothermal formations and uranium deposits, the relatively thick volcanic cover, and an absence of existing mineral leases and uranium mining claims, only casual non-surface-disturbing exploration (with no development) is postulated for oil/gas, geothermal resources and uranium/thorium.

Exploration for gold, silver and mercury, which have moderate potential for occurrence based on direct evidence on approximately 6,000 acres in the central portion of the WSA, is postulated to occur (outside of the Owyhee National Wild River corridor). This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to fifteen core holes (throughout the central and southwestern portions of the WSA) and may disturb 10 acres including 8 miles of new road construction. The discovery of an economic gold/silver deposit is postulated, probably in the east-central portion of the WSA, and it would be developed. The operation would involve approximately 125 acres of surface disturbance for a gold/silver open-pit mine and milling/leaching complex, including 2 miles of upgraded road construction.

Exploration and development efforts for picture jasper, which has a high potential for occurrence based on abundant direct and indirect evidence on approximately 260 acres in the west-central portion of the WSA, is postulated to occur. Initially, this effort would consist of the continued development on five
lode mining claims located in the east-central portion of the WSA. Development activity would consist of blasting, sizing and removal of the jasper and would involve approximately five acres of surface disturbance, including 0.1 mile of new road construction. Exploration for additional sources of picture jasper is postulated to occur in the same area and most likely would consist of surface examination for jasper, followed by the development of one surface mine. The operation would be essentially the same as that postulated for the existing claims and would involve five acres of surface disturbance, including 0.4 mile of new road construction. Total development of the jasper resource is postulated to include two jasper mines, resulting in 10 acres of surface disturbance, including 0.5 mile of new road construction.

Due to a lack of direct geologic evidence indicating favorability and an absence of confirmed mineral deposits, only casual non-surface-disturbing exploration (with no development) is postulated for zeolites and bentonite throughout the WSA.

Total surface disturbance resulting from projected energy and mineral exploration/development is estimated to be 145 acres, including three mine sites and 10.5 miles of new/upgraded road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would occur at the projected level of 1,386 AUMs in the WSA. The season of use would remain as identified in Table 4 for the four allotments.

One mile of fence would be built to allow a change in livestock management to improve riparian vegetation on 3 miles of stream.

Vehicle use for livestock management and maintenance of the 2 miles of fence and three reservoirs would continue on 4 miles of ways. The ways are used one to five times per year to check livestock, spread salt and maintain facilities.

Recreation Management Actions

Vehicle use would continue to be restricted by vehicle designation to 4 miles of existing ways.

River patrols would continue to monitor recreation activities on the Owyhee River during high use periods, usually from March through June. Annual recreation use levels on the Owyhee National Wild River vary according to water flow and length of the river-floating season, but have shown an upward trend since 1974. Current total recreational use in the WSA is estimated to be 3,000 visitor days per year, although use drops considerably during drought years when low water prevents river float trips.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternative.

Wilderness Values

Naturalness

The WSA appears to be generally natural. A total of 17 interior, unnatural features visually influence approximately 1,200 acres (9 percent) of the WSA. These features include seven ways (totaling 4 miles), six fences (totaling 2 miles), three reservoirs, and a rock retaining wall. Most of the interior, unnatural features are located along the boundary of the WSA.

Unnatural features outside the WSA that influence naturalness within the WSA include the boundary roads along the southern and southeastern sides of the WSA, Hole-in-The-Ground Ranch, and a smaller ranch northeast of the WSA. These outside,
unnatural features mostly impact the highpoints and slopes in the WSA and are much less noticeable from the Owyhee River and the numerous drainages in the badlands along the river.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Diverse topography is the major factor contributing to outstanding opportunities for solitude. With the exception of the southern plateau, the WSA offers a variety of terrain providing good topographic screening. However, private inholdings in the northern portion of the WSA constrain opportunities for solitude by creating narrow travel corridors which restrict the ability of a visitor to avoid other visitors. Private land acquisitions have improved this situation, but not completely eliminated the problem.

Only Deer Park, along the south side of the river, offers substantial vegetative screening. The brush is 4 to 6 feet tall and very dense. Additional trees and thick brush occur in scattered locations along the river, but are not extensive enough to provide screening.

Outside sights and sounds affecting opportunities for solitude within the WSA include ranching activity and traffic on boundary roads. These activities have only a minor impact on solitude opportunities.

The opportunities for primitive and unconfined recreation are outstanding. Day hikers, backpackers and campers would be attracted by the rugged, scenic beauty of the Owyhee Breaks and the Owyhee River. The size of the area is adequate for day hikes. It is not large enough to provide an outstanding opportunity for backpacking. Since the deeply-cut terrain north of the Owyhee River would discourage cross-country travel, most hikers would follow the natural travel corridors found in side drainages.

River floating is the most popular recreational attraction of this WSA. Approximately 5.25 miles of a 65-mile float trip on the Owyhee River are completely within the WSA. Float trips do not originate in the WSA, but pass through, terminating at downstream locations.

Many other primitive recreational activities occur in conjunction with river floating. These include wildlife viewing, photography, general sightseeing, fishing, camping and hiking. Hunting opportunities are also good within the WSA.

Special Features

The WSA consists of rolling hills, twisting gulches, a deep river canyon, sharp ridgelines and steep bluffs. This complex pattern of rugged topography, commonly referred to as the Owyhee Breaks, provides an area of geologic interest. Scenic quality is outstanding in the canyon.

The numerous cliffs provide excellent nesting habitat for a wide variety of raptors including golden eagles and prairie falcons. The WSA is part of the wintering range of 20 to 30 northern bald eagles, a Federal threatened species in Oregon.

The Owyhee River provides a very diverse ecosystem in which aquatic and riparian habitats contrast with the surrounding arid environment. Riparian vegetation includes hackberry, an unusual tree species for the desert ecosystem. Interesting animals include river otters and beavers.

The WSA is rich in cultural resources, especially along the Owyhee River. Fourteen archeological sites have been identified, including nine campsites, two shelters, two areas with scattered stone flakes, and a petroglyph site. In addition, there is a historical site inside the WSA: a crumbling, basalt wall of a house.

Diversity of the National Wilderness Preservation System

Based on the Bailey-Kuchler system of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and has the potential natural vegetation of a sagebrush steppe.

Of the vegetative communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, two which occur in the WSA are: big sagebrush/bluedash bunchgrass, and the alkaline vegetation mosaic with representative communities, including greasewood, shadscale, saltgrass and spring hopsage types.

One standard metropolitan statistical area with a population over 100,000 is within five hours’ driving time of the WSA: Boise, Idaho.
Energy and Mineral Development

The resources of the Owyhee Breaks WSA were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment and rock chip sampling by the Oregon Department of Geology and Mineral Industries (DOGAMI) under a BLM contract. This geochemical survey became the primary basis for the metallic minerals classification in the WSA. The DOGAMI report is entitled “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” Using the DOGAMI report and a heavy mineral analysis conducted by Barringer Resources, Inc., the study area was reevaluated by BLM geologists.

The Owyhee Breaks WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the mineral potential classifications for the WSA. Map 5 shows where energy and mineral resources have moderate or high potential for occurrence in the WSA.

Surface geologic material found in the WSA consists largely of Late Tertiary tuffaceous lacustrine and fluviatile sediments deposited in the broad, north-plunging Rome Basin. Other exposed rocks consist of Late Tertiary rhyolitic ash-flow tuffs, Quaternary and Tertiary basalt flows, and Quaternary landslide debris. No pre-Tertiary rocks are known to be exposed in the WSA, and it is not known what underlies the Cenozoic sediments and volcanic cover, since there has been no deep drilling in the area that has penetrated the Tertiary rocks. However, as this area lies within the western margins of late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic marine sediments may occur at depth.

Energy Resources

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of geothermal resources suitable for direct-heat use (e.g., space heaters), due largely to the evidence of relatively recent (Late Tertiary and Early Quaternary) volcanism in its southern and eastern portions, the relatively high heat flow in the area, and the presence of a thermal spring along its eastern border. Also based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas, due to the possible presence of pre-Tertiary marine sediments at depth.

Again based on indirect evidence, approximately 300 acres in the northwestern portion of the WSA, as shown on Map 5, are considered to have moderate potential for the occurrence of uranium/thorium due to anomalous values obtained during sampling.

As of October 16, 1987, there were no energy leases in the WSA.

Mineral Resources

There is a confirmed occurrence of gemstones (picture jasper), in the east-central portion of the WSA, which has been intermittently mined over the past 10 to 12 years from five mining claims. Consequently, based on this abundant direct and indirect evidence, approximately 260 acres are considered to have a high potential for the occurrence of picture jasper, as shown on Map 5.

Approximately 6,000 acres in the central portion of the WSA are known to contain gold, silver and mercury, as shown on Map 5. Based on this direct evidence, this area is considered to have a moderate potential for these mineral resources. Silver and mercury are strategic/critical minerals, but there are no confirmed deposits in the WSA.

Based on indirect evidence, i.e., the inferred presence of bentonite and zeolite and the presence of favorable rock types (tuffaceous lacustrine sediments and rhyolitic ash-flow tuffs) the entire WSA is considered to have a moderate potential for bentonite and zeolite.

As of October 16, 1987, the WSA contained five lode mining claims (all pre-FLPMA) for gemstones (picture jasper), located in the east-central portion of the WSA.

Vegetation

Vegetation throughout the WSA is characteristic of a sagebrush steppe ecosystem, with sagebrush and grasses dominant. Salt desert shrub communities are represented in approximately a third of the area, and riparian vegetation occurs along the Owyhee River and Birch Creek.

The most prevalent plant communities consist of Wyoming big sagebrush with understories of blue-bunch wheatgrass and bottlebrush squirreltail,
Sandberg's bluegrass, or Thurber's needlegrass. North of the Owyhee River, big sagebrush communities occur in a mosaic with a shadscale/Indian ricegrass/bluebunch wheatgrass community. Greasewood also occurs in this area. Ubiquitous broom snakeweed is particularly thick in the southern portion of the WSA. Western juniper are found sparsely scattered in the vicinity of Birch Creek. The seral stage of the sagebrush communities south of the river is generally mid-seral, with areas inaccessible to livestock in late seral to the potential natural community. North of the river, early to mid-seral stages predominate, with some pockets of late seral at higher elevations above the river.

Along the Owyhee River, willow, hackberry and chokecherry share the riparian zone with numerous sedges and grasses. In the Birch Creek riparian zone, alder, current, mock orange, clematis and willow occur in pockets down to the Owyhee River. Both riparian areas are showing good recovery of vegetation from historically-heavy livestock use.

No threatened or endangered species are known to occur in the WSA.

Wildlife

Land adjoining the Owyhee River provides yearlong habitat for about 100 mule deer and 20 antelope. Deer use the canyon heavily during normal winters, but move north into the vicinity of Leslie Gulch during severe winters.

Rock cliffs in the canyon environment provide excellent nesting habitat for a wide variety and high density of raptor species including golden eagles and prairie falcons. Twenty to 30 northern bald eagles use the Owyhee River and reservoir for a wintering area. Other interesting nongame and furbearing species within the WSA include river otter, beaver, raccoon, snakes and lizards.

The Owyhee River is a perennial stream which supports a variety of warm water fish. Five species of gamefish are found within the WSA, including channel catfish, black bullhead, yellow perch, whitefish and small mouth bass. Bass populations have been increasing in recent years but catfish are still the most abundant species. Rainbow trout have been planted in the river but have not survived because of scarce spawning gravel, warm water and competition from nongame species including carp, squawfish and suckers.

Hundreds of Canada geese, mallards and chukars winter in the canyon annually.

Watershed

The Owyhee Breaks WSA is dominated by the Owyhee River and contains within its boundaries several intermittent tributaries to the river. The only perennial tributary, Birch Creek, flows north along the southeastern border of the WSA for approximately 4 miles. In the past, Birch Creek was in fair to poor condition, exhibiting extensive rocky side channel bars and a wide stream channel. In 1985, grazing was changed from season long (4/1-9/1) to spring (4/1-5/10) every year, and since, the stream has demonstrated tremendous growth in herbaceous vegetation and willows on the side channels. This has resulted in improved water quality, reduced sediment loads and improved overall channel conditions.

Watershed condition within the WSA is believed to be generally good.

Livestock Grazing

Portions of four grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 2 miles of fence and three reservoirs.

Livestock operators use motor vehicles on ways approximately one to five times per year to maintain and inspect fences and reservoirs, check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to parts of the WSA, most of the livestock management is accomplished on horseback.

Recreation Use

The dominant recreational activity in the WSA is floating the Owyhee National Wild River. This activity is usually limited to March through June. However, in years with above-average runoff the season may extend into mid-summer. Canoeists, kayakers, and floaters with very small rafts may extend the season even longer. Most visitors float the river in inflatable rafts. Kayaks are the second most popular craft, and
each year there are usually a few driftboats. The usual put-in point for this section of the river is the BLM launch site in Rome, Oregon.

Although annual recreation use levels vary according to water flow and length of the river-floating season, the number of people floating the Owyhee River has increased steadily since 1974, and this trend is expected to continue. A total of 1,536 people floated this stretch of the Owyhee River in 1984.

A number of other recreational activities occur in the WSA, often in conjunction with river float trips. These include wildlife viewing, photography, general sightseeing, fishing, camping and hiking. The WSA provides good hunting opportunities because of the diversity of game species. Recently, there has been increased interest in backpacking in the canyons of the Owyhee River. Backpacking in this WSA is expected to continue to increase.

Overall recreation use in the WSA is estimated to be 3,000 visitor days per year, but use drops considerably during drought years when low water prevents river float trips.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 13,380 acres.
Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

All 13,380 acres of the WSA would be designated wilderness. Wilderness values within the entire 13,380 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including dissected terrain of geologic interest and outstanding scenic quality, northern bald eagle wintering habitat, high ecological diversity, and numerous cultural resource sites, would also be protected.

Naturalness

The WSA's naturalness (89 percent is not influenced by internal, unnatural features) would be enhanced by prohibiting motor vehicle use. Closure of 4 miles of ways which influence approximately 800 acres (about six percent) of the WSA would allow the ways to revegetate. Within three to five growing seasons, revegetation would make the ways substantially unnoticeable. Two miles of ways may receive periodic use every 5 to 10 years by heavy equipment needed to maintain two reservoirs in the southern portion of the WSA. This infrequent use would not prevent revegetation of the ways. Maintenance of a third reservoir, near the southwestern boundary road, would require 0.1 mile of cross-country travel. Disturbance to naturalness would be nominal.

A proposed fence in the eastern portion of the WSA would be allowed because it would enhance wilderness values by protecting natural processes and restoring deteriorated habitat. The construction of 1 mile of fence would allow better management of grazing and would contribute to the ongoing improvement of riparian vegetation on 3 miles of the Birch Creek drainage. The fence itself, as an unnatural feature, would influence about 100 acres in the area already influenced by the eastern boundary road.

Solitude

Opportunities for solitude would be improved through the elimination of motorized use on 4 miles of ways. The closures would especially benefit opportunities for solitude on the rolling plateau in the southern
portion of the WSA, where use of a 3-mile-long way influences opportunities for solitude in much of the area overlooking the Owyhee Breaks. However, even with closure of this way, opportunities for solitude on the plateau would be poor because there is little topographic or vegetative screening.

**Primitive and Unconfined Recreation**

Closure of 4 miles of ways would improve the quality of primitive recreation activities by allowing rehabilita-
tion of the ways. The influence of these ways would be removed from approximately 800 acres, thereby providing a more natural, primitive, wild setting.

Constructing a 1-mile-long fence to improve riparian vegetation on Birch Creek would have little impact on primitive recreation because little recreation is ex-
pected to occur on Birch Creek along the WSA’s eastern boundary. Improved wildlife habitat resulting from the fence would benefit mule deer populations, and therefore might improve hunting opportunities, but projected development of a jasper mine in the same area would displace mule deer, offsetting the benefits of the fence.

**Special Features**

Most of the WSA's special features - interesting geology, outstanding scenery, raptor nesting habitat, northern bald eagles, ecological diversity, and cultural resources - occur along the Owyhee River. Closing 4 miles of ways and constructing a 1-mile-long fence would not influence the river area, so would have no impact on special features.

**Conclusion:** Wilderness designation of the entire 13,380 acres within the Owyhee Breaks WSA would result in protection and enhancement of existing wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 10,860 acres of public lands within the WSA to mineral entry (the remaining 2,520 acres of public land along the Owyhee River, which is a component of the National Wild and Scenic Rivers System, is already closed to mineral entry). A total of 160 acres of private inhold-
ings would be open to mineral exploration and develop-
ment at the landowners' discretion.

**Energy Development**

Projected exploration for oil and gas and geothermal resources would be precluded on 13,380 acres, and for uranium/thorium on approximately 300 acres in the
orthwestern portion of the WSA. Due to a lack of sufficient geologic evidence to justify an extensive explora-
tion/development program, only casual non-
surface-disturbing exploration (without development) is postulated for oil/gas and geothermal resources on the 160 acres of private land. No other energy development activities have been projected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Projected exploration would be precluded for bentonite and zeolite on the entire 13,380 acres; for gold, silver and mercury on 6,000 acres in the central portion of the WSA; and for picture jasper on approxi-
mately 260 acres in the east-central portion of the WSA.

As a consequence of wilderness designation, produc-
tion from one projected gold/silver open-pit mine would be foregone.

Continued development of picture jasper from five existing lode mining claims, located in the east-central portion of the WSA is projected to occur, consisting of one mine site. Due to wilderness designation, pro-
duction from an additional projected picture jasper mine would be foregone. Due to the lack of sufficient geologic evidence to justify an extensive exploration/ development program, only casual non-surface-
disturbing exploration (without development) is postulated for bentonite and zeolite on the 160 acres of private lands.

**Conclusion:** Wilderness designation would result in foregone production from one projected gold/silver open-pit mine and one projected picture jasper mine.

**Impacts on Vegetation**

Continued livestock grazing would maintain the present vegetative composition and ecological status over most of the WSA.

Four miles of ways, once closed to vehicles, would revegetate within three to five years.
Better management of livestock through construction of 1 mile of fence would allow more rapid recovery of riparian vegetation along 3 miles of Birch Creek and a short section of the Owyhee River, and would increase composition of willow, rose, current, and associated riparian species.

**Conclusion:** Riparian vegetation would improve and 4 miles of ways would revegetate. Little or no change would occur to vegetative composition or ecological status over the rest of the area.

**Impacts on Wildlife**

Wildlife habitat for approximately 100 mule deer, 20 antelope, northern bald eagles and other raptors, nongame wildlife species and a number of fish species would be maintained under wilderness designation. Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plans.

Closure of 4 miles of ways would eliminate vehicle disturbance of wildlife, especially antelope. Fence construction would contribute to improved riparian habitat along 3 miles of Birch Creek, possibly allowing a slight increase in populations of mule deer, nongame birds and fish.

**Conclusion:** Wildlife habitat and populations would be maintained on 13,380 acres designated wilderness.

**Impacts on Watershed**

Closure of 4 miles of ways would increase hillslope stability and decrease potential erosion.

Riparian condition along Birch Creek is improving as described under Affected Environment. Construction of 1 mile of riparian fence would slightly contribute to this ongoing improvement by allowing more flexibility in the design of a livestock grazing scheme.

**Conclusion:** Water quality and overall channel conditions would continue to improve along Birch Creek and would remain unchanged elsewhere.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 1,399 AUMs within the portions of the four allotments in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 4 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and slight additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs. This periodic infrequent use would involve 2 miles of ways and 0.1 mile of cross-country travel.

One mile of fence would be constructed, allowing a grazing system to be implemented that would improve riparian vegetation on 3 miles of stream.

**Conclusion:** Livestock use would continue at 1,399 AUMs. The use of 4 miles of ways for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators. One mile of fence would be constructed allowing better livestock management.

**Impacts on Recreation Use**

Closing 4 miles of ways to motorized vehicles would cause only a slight reduction in recreation use because most recreation inside the WSA does not depend on vehicles. Eliminating vehicle-based sightseeing on the WSA’s southern plateau would cause a slight reduction in recreation use.

The number of visitors participating in river floating and associated recreational activities on the Owyhee National Wild River has steadily increased since 1974, and this trend is expected to continue.

Overall recreational use of the WSA would continue to increase from approximately 3,000 to 4,500 visitor days per year as public awareness grows of the existing wilderness qualities within the WSA, as it would more than offset the slight reduction caused from vehicle use restrictions.

**Conclusion:** Overall recreation use would increase from approximately 3,000 to 4,500 visitor days per year.

**Impacts on Local Personal Income**

Livestock grazing would remain at 1,399 AUMs. Overall recreation use would increase by 1,500 visitor days per year.
Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $18,000 per year from the current level plus an unknown level of increase attributable to the projected mineral development on existing claims.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $18,000, with an unknown level of increase from projected mineral development.

**Proposed Action**

Recommended suitable for wilderness: 10,805 acres (assuming acquisition of 160 acres of private inholdings).

Recommended nonsuitable for wilderness: 2,735 acres.

**Impacts on Wilderness Values**

The Proposed Action would add 10,805 acres to the NWPS, assuming 160 acres of private inholdings are acquired as proposed under this alternative. Three ways totaling 0.5 mile in length would be closed. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be protected by legislative mandate on the portion of the WSA recommended suitable for wilderness. Special features, including dissected terrain of geologic interest and outstanding scenic quality, northern bald eagle wintering area, high ecological diversity, and numerous cultural resource sites would also be protected.

Under this alternative, 2,735 acres would not be designated wilderness, and wilderness values in this area would not receive special legislative protection.

**Naturalness**

Acquisition of the private inholdings would prevent impairment of the area's naturalness by eliminating projected mineral exploration activities on the private parcels.

Three ways totaling approximately 0.5 mile would be closed to vehicles. Revegetation would remove the ways' influence on the naturalness of approximately 40 acres near the WSA's boundary.

Excluding 2,735 acres on the WSA's southern plateau from wilderness designation would allow vehicle use to continue on 3.5 miles of ways. These ways would not revegetate and would continue to influence naturalness on approximately 760 acres. Projected mineral exploration in this area would cause 0.5 acres of surface disturbance, including a drill site and 0.4 mile of road construction. Influence on naturalness would be short term because reclamation and revegetation would occur after completion of exploration activities.

Construction of 1 mile of fence would allow better management of livestock and would contribute to the improvement of riparian vegetation on 3 miles of the Birch Creek drainage. The fence itself, as an unnatural feature, would influence approximately 100 acres, the same as under the all wilderness alternative.

**Solitude**

The effects on solitude on the 10,805 acres recommended suitable as wilderness would be similar to the all wilderness alternative, except that acquisition of the four private inholdings would enhance opportunities for solitude in the northern portion of the WSA by precluding disturbances associated with projected mineral exploration activities. Closure of 0.5 mile of ways would have little impact on opportunities for solitude because the ways are short, rarely used, and near the WSA's boundary.

Excluding 2,735 acres on the WSA's southern plateau from wilderness designation would allow disturbances associated with vehicle use to continue on 3.5 miles of ways. Vehicle use on these ways would continue to influence opportunities for solitude on the plateau overlooking the Owyhee Breaks. However, the impact would be relatively minor because opportunities for solitude are already poor in this area due to the lack of topographic and vegetative screening.

**Primitive and Unconfined Recreation**

Acquiring the four private inholdings would enhance opportunities for primitive and unconfined recreation in the northern portion of the WSA by eliminating the projected mineral exploration activities which would temporarily disturb primitive recreation opportunities. The acquisition would also provide visitors with greater freedom of movement by eliminating the restricted travel corridors created by the private parcels.

Closure of 0.5 mile of ways would have little impact on opportunities for primitive and unconfined recreation because the ways are short, rarely used, and near the WSA's boundaries. There would be a minor benefit of an improved natural setting on 40 acres influenced by the ways.
Excluding 2,735 acres on the WSA’s southern plateau from wilderness designation would have little impact on primitive recreation opportunities because few opportunities exist on this gently-rolling plateau. Most recreational use occurs along the Owyhee River and in the adjacent breaks.

Construction of a fence would help improve riparian habitat and hunting opportunities along Birch Creek, but development of a jasper mine in the same area would displace wildlife, offsetting the benefits of the fence on hunting opportunities.

**Special Features**

Most of the WSA’s special features occur along the Owyhee River. Excluding 2,735 acres from wilderness designation, closing 0.5 mile of ways and constructing a 1-mile-long fence would not influence the river area, so would have no impact on special features.

**Conclusion:** Wilderness designation of 10,805 acres would protect and enhance wilderness values over most of the WSA. On the 2,735 acres recommended nonsuitable for wilderness, wilderness values would be directly impaired on 0.5 acre from projected mineral exploration, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 8,125 acres of public land within the WSA to mineral entry (an additional 2,520 acres of public land along the Owyhee River, which is part of the National Wild & Scenic Rivers System, is already closed to mineral entry). Assuming successful acquisition, 160 acres of private land would also be closed to mineral entry. A total of 2,735 acres of public land recommended as nonsuitable for wilderness would be open to mineral entry.

**Energy Development**

On the 10,805 acres recommended suitable as wilderness, projected exploration for uranium/thorium on approximately 300 acres in the northwestern portion of the WSA and for oil and gas and geothermal resources on the entire 10,805 acres would be precluded. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is postulated for oil/gas and geothermal resources in the nonsuitable portion of the WSA. No other energy development activities have been projected.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

On the 10,805 acres recommended suitable as wilderness, projected exploration would be precluded for bentonite and zeolite over the entire area; for gold, silver and mercury on approximately 5,100 acres in the central portion of the area; and for picture jasper on approximately 260 acres in the east-central portion of the area.

As a consequence of wilderness designation, production from one projected gold/silver open-pit mine would be foregone.

Continued development of picture jasper from five existing lode mining claims located in the east-central portion of the WSA is projected to occur, consisting of one mine site. Due to wilderness designation, production from an additional projected picture jasper mine would be foregone.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is postulated to occur for bentonite and zeolite in the recommended nonsuitable portion of the WSA.

**Conclusion:** Wilderness designation would result in foregone production from one projected gold/silver open-pit mine and one projected picture jasper mine.

**Impacts on Vegetation**

In the portion of the WSA recommended suitable as wilderness, approximately 0.5-mile of ways would revegetate within three to five years following closure to vehicle traffic.

Better management of livestock through construction of 1 mile of fencing would allow more rapid recovery of riparian vegetation along 3 miles of Birch Creek and a portion of the Owyhee River.

In the portion of the WSA recommended nonsuitable as wilderness, projected exploration for gold, silver and mercury would disturb vegetation on approximately 0.5 acre. The disturbed site would revegetate within three to five growing seasons after completion of exploration activities.
Continued livestock grazing would maintain the vegetative composition and or ecological status over the rest of the area.

Conclusion: Riparian vegetation would improve and 0.5 mile of ways and 0.5 acre of area would revegetate. Little or no change would occur to vegetative composition or ecological status over the rest of the area.

Impacts on Wildlife

On 10,805 acres recommended suitable as wilderness under this alternative, wildlife habitat for approximately 100 mule deer, 20 antelope, northern bald eagles and other raptors, nongame wildlife species and a number of fish species would be maintained. Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plans.

Closure of 0.5 mile of ways would eliminate vehicle disturbance of wildlife in the vicinity of the ways. Fence construction would contribute to improved riparian habitat along 3 miles of Birch Creek, possibly allowing a slight increase in populations of mule deer, nongame birds and fish.

Acquisition of 160 acres of private land would preclude projected exploration activities which would locally disturb wildlife present during the activities.

On 2,735 acres recommended nonsuitable as wilderness, mineral exploration activity would cause minor, temporary displacement of wildlife in the vicinity of activities and would disturb wildlife habitat on 0.5 acre, including 0.4 mile of road construction. The disturbance to wildlife would last only for the duration of exploration activities.

Conclusion: Wildlife habitat and populations would be maintained on 10,805 acres designated wilderness and on 2,735 acres recommended nonsuitable as wilderness. Three miles of Birch Creek riparian area would improve.

Impacts on Watershed

In the area recommended suitable as wilderness, closure of 0.5 mile of ways would increase slope stability and decrease potential erosion in the vicinity of the ways.

Construction of 1 mile of riparian fence would slightly contribute to the ongoing improvement of Birch Creek (as described in the Affected Environment section) by allowing more flexibility in the design of a livestock grazing scheme.

In the area recommended nonsuitable as wilderness, projected mineral exploration activities would have little or no impact on watershed.

Conclusion: Water quality and overall channel conditions would continue to improve along Birch Creek and would remain unchanged elsewhere.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,399 AUMs within the portions of the four allotments in the WSA.

In the area recommended suitable as wilderness, vehicle use for livestock management and facility inspection/maintenance on 0.5 mile of way would be precluded under wilderness designation. This would result in minor inconvenience to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of a reservoir. This periodic infrequent use would involve 0.1 mile of cross-country travel.

One mile of fence would be constructed to allow a grazing system to be implemented that would improve riparian vegetation on 3 miles of stream.

In the area recommended nonsuitable as wilderness, vehicle use for livestock management and facility inspection/maintenance on 2 miles of fence and two reservoirs would continue one to five times per year on 3.5 miles of ways.

Conclusion: Livestock use would continue at 1,399 AUMs. In the area recommended suitable as wilderness, the use of 0.5 mile of ways would be precluded with minor inconvenience to livestock operators. One mile of fence construction would provide for better livestock management. Vehicle use would continue on 3.5 miles of ways in the area recommended nonsuitable as wilderness.

Impacts on Recreation Use

Closure of three ways near the WSA’s boundary (totaling 0.5 mile) would have little or no impact on recreational use because they are rarely used.
Acquisition of the four private inholdings would eliminate the short-term impacts of projected mineral exploration activities which would discourage recreation use of the northern portion of the WSA. As hiking in the Owyhee River canyon becomes more popular, increased recreational use of the river breaks is expected to occur. The private parcel acquisitions would ensure that the natural, wild environment of the river breaks area is preserved.

The number of visitors participating in river floating and associated recreational activities has steadily increased since 1974, and this trend is expected to continue.

Excluding 2,735 acres on the WSA's southern plateau from wilderness designation would allow continued vehicle use of 3.5 miles of ways. Vehicle-based sightseeing would continue to occur on these ways.

Overall recreational use of the WSA would continue to increase from approximately 3,000 to 4,500 visitor days per year as public awareness grows of the existing wilderness qualities within the WSA.

**Conclusion:** Overall recreation use would increase from approximately 3,000 to 4,500 visitor days per year.

**Impacts on Local Personal Income**

Livestock grazing would remain at 1,399 AUMs. Overall recreation use would increase by 1,500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $18,000 per year, plus an unknown level of increase attributable to the projected mineral development on existing mining claims.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $18,000, with an unknown level of increase from projected mineral development.

**No Wilderness/No Action**

Recommended suitable for wilderness: 0 acres. Recommended nonsuitable for wilderness: 13,380 acres.

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 13,380 acres would not be designated wilderness, and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features, including dissected terrain of geologic interest and outstanding scenic quality, northern bald eagle wintering area, high ecological diversity, and numerous cultural resource sites would be subject to the effects of the projected management actions. Projected actions include mineral exploration and development, construction of a 1-mile-long fence, continued use of vehicles for livestock management and facility maintenance/inspection, continued recreational vehicle use limited to existing ways, and continued application of restrictions associated with RNA, ACEC, and Wild and Scenic River designations.

**Impacts on Wilderness Values**

**Naturalness**

Continued vehicle use on 4 miles of ways would maintain the impact of vehicle tracks upon naturalness on approximately 800 acres (almost six percent of the WSA).

Projected mineral exploration would result in 15 drill sites, 8 miles of new roads, and 10 acres of surface disturbance. All of the drill sites would be located in the portion of the WSA south of the Owyhee River, and 10 of them would be located below the rim of the plateau, in the river breaks. After completion of exploration activities, all roads and surface disturbance would be reclaimed and revegetated. In most areas, the influence on naturalness would be short term. However, in areas where roads would cross steep slopes, roadcuts would have a long-term impact on naturalness. Even after reclamation and revegetation occurs, some roadcuts would continue to disturb the area's natural contours and would remain highly visible. Depending on the exact location of roads and exploration sites, the long-term visual influence on naturalness could affect as much as 3,000 acres of the WSA, including the river corridor, high points in the area north of the Owyhee River, and much of the area south of the river.

Development of two picture jasper mines in Birch Creek Canyon would cause 10 acres of surface disturbance and require construction of 0.5 mile of road. The mines would have a long-term impact on the naturalness of approximately 200 acres adjacent to the eastern boundary road. Development of a gold/silver open-pit mine on the northern edge of the
WSA's southern plateau would cause 125 acres of surface disturbance and would require upgrading of 2 miles of ways to a 30-foot-wide road. The mine would have a long-term visual influence on the naturalness of approximately 1,500 acres.

The construction of a 1-mile-long fence would improve riparian vegetation on 3 miles of Birch Creek, but would have an adverse impact on the naturalness of 100 acres, the same impact as under the other alternatives.

Development restrictions established by RNA, ACEC and Wild and Scenic River designations would continue to provide some protection to wilderness values on approximately 3,680 acres. Refer to Section 1, Interrelationships.

In total, projected management actions within the WSA, including mineral exploration and development and fence construction would cause approximately 145 acres of surface disturbance, which would visually influence approximately 4,800 acres (about 35 percent of the WSA).

**Solitude**

Continued vehicle use on 4 miles of ways and human activity associated with projected mineral exploration would cause short-term, local impairment of solitude opportunities adjacent to the activity.

Development of two picture jasper mines near the eastern boundary would cause long-term impairment of opportunities for solitude in the adjacent area. Development of a gold/silver open-pit mine on the WSA's southern plateau would cause long-term impairment of opportunities for solitude on much of the area overlooking the Owyhee Breaks. Noise and increased traffic associated with these mining activities would affect opportunities for solitude on approximately 3,000 acres of the WSA.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing ways as well as to 2.5 miles of two new roads constructed for projected minerals development. Continued vehicle use on the 4 mile of existing ways would continue to intrude on primitive, non-motorized recreation opportunities in the vicinity of these routes.

Projected development of a gold/silver open-pit mine would impair sightseeing, wildlife viewing, photography and hunting on the WSA's southern plateau. However, primitive recreation opportunities are limited in this area. Most recreation would continue to occur along the Owyhee River.

Construction of a 1-mile-long fence would contribute to the improvement of riparian vegetation and wildlife habitat on 3 miles of the Birch Creek drainage. Any improvement of hunting or wildlife viewing opportunities would be offset by the projected development of two picture jasper mines in the same area. The mines would disturb habitat and displace wildlife. The overall effect on primitive recreation would be small because the affected area is next to the eastern boundary road, in an area where there would be little primitive recreation.

Projected mineral exploration would cause short-term, localized impairment of primitive recreation in adjacent areas because of increased human activity and temporary displacement of wildlife. Exploration site access roads that cross steep slopes could cause long-term disturbance of the natural, wild setting over approximately 3,000 acres.

**Special Features**

Most of the WSA's special features occur along the Owyhee River. Continued vehicle use on 4 miles of ways, construction of a 1-mile-long fence, and development of two jasper mines and a gold/silver mine would not influence the river area, so would have no impact on special features.

Potential long-term surface disturbance resulting from projected mineral exploration, including construction of drill site access roads, might damage scenic quality associated with the Owyhee River canyon. Damage to scenic quality would depend on the type of development and location of drill sites and roads.

**Conclusion:** In the absence of wilderness designation, projected activities, including mineral exploration, development of three mines, construction of 10.5 miles of road, and construction of a 1-mile-long fence, would both directly and indirectly impair wilderness values over approximately 4,800 acres (about 35 percent) of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

A total of 10,860 acres of public land in the WSA would be open to mineral entry. A total of 2,520 acres of public land along the Owyhee National Wild River would remain closed to mineral entry.
Energy Development

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is postulated for oil/gas and geothermal resources and for uranium/thorium.

Conclusion: There would be no impact on energy development.

Mineral Development

Projected exploration for gold, silver and mercury on 6,000 acres in the central portion of the WSA would occur outside of the Owyhee National Wild River corridor. The development of a gold/silver open-pit mine would occur as projected.

Projected exploration/development of picture jasper on 260 acres in the east-central portion of the WSA would occur and would include the continued development of the jasper deposit on five existing lode mining claims and the development of an additional jasper mine in the same area.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is postulated for bentonite and zeolite.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

The 15 drill sites for gold would temporarily remove vegetation on 10 acres, including 8 miles of new roads constructed during the exploration phase. Most disturbed areas, if not developed further, would revegetate in three to five years. Development of the projected open-pit gold mine would remove vegetation on 125 acres, including development of 2 miles of 30-foot-wide mine access road. Development of two jasper mines would remove vegetation on 10 acres, including 0.5 mile of new roads constructed to these mines.

Better management of livestock through construction of 1 mile of fence would allow more rapid recovery of riparian vegetation along 3 miles of Birch Creek and a portion of the Owyhee River.

Conclusion: Projected mineral exploration and development would remove vegetation on 135 acres. Riparian vegetation would be improved. Little or no change would occur to vegetative composition or ecological status on the rest of the area.

Impacts on Wildlife

Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plans.

Projected mineral exploration would cause minor and temporary wildlife displacement and habitat losses for game and nongame species with construction of 8 miles of new roads, and 10 acres of surface disturbance. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities ceased, habitat was rehabilitated and roads constructed for exploration were closed.

Projected mineral development would cause 135 acres of surface disturbance, including 2.5 miles of new or upgraded roads, and would result in the disturbance of wildlife and habitat loss. The two mines in the Birch Creek drainage would displace deer and small nongame species and would increase stream sedimentation, possibly reducing fish populations. The mine at the edge of the WSA's southern plateau would displace deer and antelope. Increased vehicle use associated with this mine would disturb wildlife over approximately 3,000 acres on the plateau.

Fence construction would contribute to improved riparian habitat along 3 miles of Birch Creek, possibly allowing a slight increase in populations of mule deer, nongame birds and fish. However, mining activity in this area would probably prevent any possible increases.

Fence construction would improve riparian habitat along 3 miles of Birch Creek, but mine development in this area would prevent enhancement of deer and nongame species populations.

The Owyhee River ACEC and Owyhee National Wild River designations would continue to provide some protection to wildlife by way of stipulations on power boat use, developments and livestock grazing. Provisions in the Jordan Craters ACEC/RNA would assure the perpetuation of native vegetation for wildlife use.
Conclusion: Temporary displacement of game and nongame species would result from mineral exploration activity. Minerals development would cause long-term habitat losses and displacement of some mule deer, antelope and small nongame species over 3,000 acres and would increase sedimentation of Birch Creek, possibly reducing fish populations.

Impacts on Watershed

Under the no wilderness alternative, two jasper mines and the associated 10 acres of surface disturbance would occur within the Birch Creek watershed. The mines would be located on very steep side slopes adjacent to Birch Creek, causing slope instability and increased sedimentation in Birch Creek and the Owyhee River.

Development of one gold/silver open-pit mine would create 125 acres of surface disturbance including 2 miles of upgraded roads, having a minor impact on watershed condition and water quality. Due to the proposed mine location on relatively flat rim-rock high up in the Birch Creek watershed, some siltation may occur but would not be significant.

Of the 15 proposed drill sites for gold, silver and mercury exploration, eight of these would be located in areas that would cause a temporary decline in watershed condition. The eight drill sites are located in very steep terrain, within watersheds that are tributaries to the Owyhee River. Four of the eight are within the Birch Creek watershed. Approximately 4 miles of temporary new road associated with the eight drill sites would traverse down steep terrain, crossing over high gradient tributary streams. The roads and drill sites would cause a decrease in slope stability, an increase in hillside erosion, and increased sedimentation of Birch Creek and the Owyhee River. The impacts would be temporary, lasting only as long as exploration activities continued. Reclamation and revegetation of roads and drill sites would follow cessation of mineral exploration.

As in the other alternatives, construction of 1 mile of riparian fence would slightly contribute to the ongoing improvement of Birch Creek (as described in the Affected Environment section) by allowing more flexibility in the design of a livestock grazing scheme.

Conclusion: Mineral exploration would cause a temporary increase in sedimentation of Birch Creek and the Owyhee River. Mineral development would cause a long-term increase in sedimentation of Birch Creek, resulting in a decline in water quality. Watershed condition would remain unchanged elsewhere.

Impacts on Livestock Grazing

Projected mineral development and its long-term disturbance of 135 acres would remove forage and likely decrease the allocation to livestock by 13 AUMs.

One mile of fence would be constructed to allow a grazing system to be implemented that would improve riparian vegetation along 3 miles of stream.

Vehicle use for livestock management and facility inspection/maintenance of 2 miles of fence and three reservoirs would continue on 4 miles of ways.

Conclusion: Projected mineral development would decrease the allocation to livestock by 13 AUMs. One mile of constructed fence would provide for better livestock management.

Impacts on Recreation Use

Motorized recreation would continue on 4 miles of ways. Vehicle-based sightseeing on the WSA's southern plateau is the most popular type of motorized recreation in the WSA, although use levels are low. Motorized recreation is a minor part of overall recreation use in the WSA.

Development of two picture jasper mines near the eastern boundary would displace game species and damage the natural setting in Birch Creek Canyon, causing a slight reduction in hunting use. This part of the WSA currently receives little recreational use and the mine development would be away from the popular Owyhee National Wild River user's viewshed and concentrated on the eastern boundary of the WSA, so the impact of the mines would be small.

Development of a gold/silver mine would disturb the natural setting on the WSA's southern plateau, and displace wildlife. This would reduce opportunities predominately for hunting, wildlife viewing, photography and sightseeing in this area. Being located outside the viewshed of the wild river on the southern rim of the Birch Creek drainage, no impacts to river floatboaters is anticipated.

Mineral exploration would discourage recreation on adjacent areas. The impacts would be temporary, lasting only while exploration activities continued.
The increase in the number of people floating the Owyhee River is expected to continue. Owyhee River ACEC and Owyhee National Wild River designations will continue to protect the half mile wide river corridor.

Overall recreation use of the area would increase from approximately 3,000 to 4,300 visitor days per year due primarily to increased floatboating use on the Owyhee National Wild River.

**Conclusion:** Overall recreation use would increase from 3,000 to 4,300 visitor days per year, primarily from increased river use.

### Impacts on Local Personal Income

Livestock grazing would decrease by 13 AUMs. Overall recreation use would increase by 1,300 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $15,444 per year from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $15,000, with an unknown level of increase from projected energy and mineral development.

### Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action, projected mineral exploration on 8,285 acres, and production from a gold/silver mine and a picture jasper mine would be foregone. Vehicle use on 0.5 mile of ways would be excluded.

On 2,735 acres recommended nonsuitable for wilderness, projected mineral exploration activities would lead to unavoidable adverse impacts to wilderness values as a result of 0.5 acres of surface disturbance which visually influences approximately 100 acres.

### Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue. The long-term productivity of wilderness values would be preserved on most of the 10,805 acres. Long-term productivity of wilderness values would be directly lost on approximately five acres and indirectly on approximately 200 acres (about two percent) within the suitable area from surface disturbance caused by continued mineral development on five existing pre-FLPMA lode mining claims in the WSA. On 2,735 acres recommended nonsuitable as wilderness, future development options would remain open, with 0.5 acres directly lost which visually affects 100 acres for short-term uses causing a minor decline of wilderness values, and with further declines from potential uses over the long term.

### Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be an irreversible or irretrievable commitment of 5 acres which visually influences approximately 200 acres of the wilderness resource.

### 5. Wilderness Manageability and Rationale for the Proposed Action

#### Manageability of the Area as Wilderness

The area is capable of being managed to preserve its wilderness characteristics. Manageability would be enhanced if four 40-acre private inholdings were acquired. The acquisitions would prevent potential adverse effects from access to, and incompatible surface-disturbing activities on, these parcels.

Development of five mining claims with possible "valid existing rights" in the eastern portion of the WSA could continue if valuable mineral deposits are located prior to wilderness designation, regardless of the effect on wilderness values. Development of
these claims would damage wilderness values on 200 acres adjacent to the eastern boundary road, making manageability as wilderness very difficult in this area.

Eliminating 2,735 acres on the WSA’s southern plateau from wilderness designation would improve manageability because it would be difficult to prevent continued use of the ways and off-road vehicle use of the gently rolling terrain in this area.

Rationale for Selection of the Proposed Action

The Proposed Action is preferred because of the major benefits of preserving wilderness values in the portion recommended suitable as wilderness. Most of the wilderness values in the WSA would be preserved under the Proposed Action.

Special wilderness features in the portion recommended suitable as wilderness include a complex pattern of dissected topography, outstanding scenic quality, excellent nesting habitat for a variety of raptors, northern bald eagle winter range, river otter habitat, and numerous cultural resource sites. The Owyhee River contributes to a very diverse ecosystem in which aquatic and riparian habitats contrast with the surrounding arid environment.

The completed acquisition of four parcels of private property within or adjacent to the WSA and proposed acquisition of four private inholdings would prevent potential impairment of wilderness values from ground-disturbing motorized access and development. The acquisitions would also improve opportunities for solitude and primitive and unconfined recreation, improve freedom of movement within the WSA, and reduce the potential for development of land adjacent to the WSA (especially at Birch Creek Ranch).

The Proposed Action would eliminate from wilderness designation a portion of the WSA containing 3.5 miles of ways and two reservoirs. There is little topographic screening on the gently rolling terrain eliminated under this alternative, so wilderness values are already impacted by these developments, as well as by the boundary roads.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: To protect watersheds and other natural features, consider an alternative that would combine 3-59 with 3-110 (Lower Owyhee Canyon) and 3-111 (Saddle Butte). Response: These two WSAs are separated by a road that is needed for access to private property and cannot be blocked off and, therefore, will not be considered for closure. See the discussion in Section 2, Description of Alternatives, regarding alternatives considered but not analyzed.
Table 1. Summary of Proposed Management Under Each Alternative, Owyhee Breaks WSA (OR-3-59)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>13,380</td>
<td>10,645</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>13,380</td>
<td>10,645</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>4</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>0.1</td>
<td>0.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired(^2)</td>
<td>0</td>
<td>160</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation(^3)</td>
<td>10,860</td>
<td>8,125</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Decreased Forage Allocation to Livestock (AUMs)</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed: Fences (Miles)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^1\)Except for 4 miles of ways in the WSA, most of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

\(^2\)Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.

\(^3\)A total of 2,520 acres in the WSA are already withdrawn from mineral location and leasing through Congressional designation of the area as a Wild and Scenic River.
Table 2. Summary of Environmental Consequences of Alternatives, Owyhee Breaks WSA (OR-3-59)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 13,380 acres would protect and enhance existing wilderness values.</td>
<td>Wilderness designation of 10,805 acres (assuming the acquisition of four 40-acre private inholdings) would protect and enhance existing wilderness values over most of the WSA. On 2,735 acres recommended nonsuitable as wilderness, wilderness values would be directly impaired on 0.5 acre from projected mineral development with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would directly and indirectly impair wilderness values over approximately 4,800 acres (about 35 percent) of the WSA with further declines from other potential uses over the long term. Development restrictions established by RNA, ACEC and Wild and Scenic River designations would continue to provide some protection to wilderness values on 3,680 acres.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one projected jasper mine and one projected gold/silver/mercury mine.</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one projected jasper mine and one projected gold/silver/mercury mine.</td>
<td>There would be no impact on energy or mineral development.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Riparian vegetation would improve and 4 miles of ways would revegetate. Little or no change would occur to vegetative composition or ecological status over the rest of the area.</td>
<td>Riparian vegetation would improve and 0.5 mile of ways and 0.5 acre would revegetate. Little or no change would occur to vegetative composition or ecological status over the rest of the area.</td>
<td>Projected mineral exploration and development would remove vegetation on 135 acres. Riparian vegetation would improve. Little or no change would occur to vegetative composition or ecological status over the rest of the area.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 13,380 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 10,805 acres designated wilderness and on 2,735 acres recommended nonsuitable as wilderness. Three miles of Birch Creek riparian area would improve.</td>
<td>Mineral exploration and development would disturb 135 acres of habitat, displace deer, antelope and small non-game species and increase sedimentation of Birch Creek, possibly reducing fish populations. Fence construction would improve habitat along 3 miles of Birch Creek, but mine development in this area would prevent enhancement of deer and nongame species populations. ACEC, RNA and Wild and Scenic River designations would continue to provide some protection to wildlife.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Water quality and overall channel conditions would continue to improve along Birch Creek and would remain unchanged elsewhere.</td>
<td>Water quality and overall channel conditions would continue to improve along Birch Creek and would remain unchanged elsewhere.</td>
<td>Mineral exploration and development would increase sedimentation of Birch Creek, resulting in a decline in water quality. Watershed condition would remain unchanged elsewhere.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would continue at 1,399 AUMs. Use of 4 miles of ways for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators. One mile of fence would be constructed allowing better livestock management.</td>
<td>Livestock use would continue at 1,399 AUMs. In the area recommended suitable as wilderness, use of 0.5 mile of ways for day-to-day livestock management would be precluded with minor inconvenience to livestock operators. One mile of fence would be constructed allowing better livestock management. In the area recommended nonsuitable as wilderness, vehicle use would continue on 3.5 miles of ways.</td>
<td>Projected mineral development would decrease allocation to livestock by 13 AUMs. One mile of fence would be constructed allowing better livestock management.</td>
</tr>
</tbody>
</table>
Table 2. Summary of Environmental Consequences of Alternatives, Owyhee Breaks WSA (OR-3-59)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation</td>
<td>Overall recreation use would increase from approximately 3,000 to 4,500 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 3,000 to 4,500 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 3,000 to 4,300 visitor days per year, primarily from increased river use.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income generated from resource outputs in the WSA would increase by approximately $18,000, with an unknown level of increase from projected mineral development.</td>
<td>Annual local personal income generated from resource outputs in the WSA would increase by approximately $18,000, with an unknown level of increase from projected mineral development.</td>
<td>Annual local personal income generated from resource outputs in the WSA would increase by approximately $15,000, with an unknown level of increase from projected energy and mineral development.</td>
</tr>
</tbody>
</table>

Table 3. Classification of Energy and Mineral Potential, Owyhee Breaks WSA (OR-3-59)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Classification Area</th>
<th>Level of Potential</th>
<th>Level of Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, silver, mercury</td>
<td>See Map 5</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Tin</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>See Map 5</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Gemstones (Picture Jasper)</td>
<td>See Map 5</td>
<td>H</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
M - Low potential for accumulations of energy/mineral resource
L - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Confidence

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence
Table 4. Existing Livestock Use, Owyhee Breaks WSA (OR-3-59)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Current Percent of Allotment in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birch Creek¹</td>
<td>1099</td>
<td>04/01-05/10</td>
<td>15</td>
<td>129</td>
</tr>
<tr>
<td>(No. 0506)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartz Mountain</td>
<td>5586</td>
<td>11/01-04/01</td>
<td>8</td>
<td>704</td>
</tr>
<tr>
<td>(No. 0406)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodge (No. 0901)</td>
<td>3150</td>
<td>04/01-10/31</td>
<td>16</td>
<td>504</td>
</tr>
<tr>
<td>Morcom (No. 0907)</td>
<td>150</td>
<td>Yearlong</td>
<td>41</td>
<td>62</td>
</tr>
<tr>
<td>Totals</td>
<td>9,985</td>
<td></td>
<td></td>
<td>1,399</td>
</tr>
</tbody>
</table>

¹In 1984 additional pastures were incorporated into the Birch Creek Allotment. Actual use in the WSA has not changed.

Table 5. Effects of Alternatives on Local Personal Income, Owyhee Breaks WSA (OR-3-59) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>-13</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>No Change</td>
<td>+1</td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>No Change</td>
<td>+1</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+1,500</td>
<td>+1,500</td>
<td>+1,300</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>-156</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>$</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+18,000</td>
<td>+18,000</td>
<td>+15,600</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+18,000</td>
<td>+18,000</td>
<td>+15,444</td>
</tr>
</tbody>
</table>
R42E
R43E
T26S
T27S
T28S

LEGEND

BLM Land in WSA Studied Under Section 603 of FLPMA
Wilderness Study Area Boundary
Boundary of Adjacent Wilderness Study Areas
Bureau of Land Management
Private
BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management
Vale District
Owyhee Breaks WSA
OR-3-59

LAND OWNERSHIP

MAP 2
203
Wilderness Study Area Boundary

Boundary of Adjacent Wilderness Study Areas

Owyhee River ACEC

Jordan Craters ACEC

U.S. Department of the Interior
Bureau of Land Management
Vale District

Owyhee Breaks WSA
OR-3-59

AREA OF CRITICAL ENVIRONMENTAL CONCERN
Wilderness Study Area Boundary

Boundary of Adjacent Wilderness Study Areas

Recommended Suitable for Wilderness

Non-Federal Land within Recommended Wilderness

Recommended Non-suitable for Wilderness

U.S. Department of the Interior
Bureau of Land Management
Vale District

Owyhee Breaks WSA
OR-3-59

PROPOSED ACTION
Moderate Potential (MC) for Gold, Silver and Mercury

Moderate Potential (MB) for Uranium/thorium

High Potential (HD) for Gemstones (Picture Jasper)

Entire WSA:
Moderate Potential (MB) for Geothermal Resources, Oil/Gas, Bentonite and Zeolites

U.S. Department of the Interior
Bureau of Land Management
Vale District

Owyhee Breaks WSA
OR-3-59

MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES
Owyhee Breaks WSA, OR-3-59. West side of WSA looking northeast across the northern portion of the WSA. Within area recommended suitable under the proposed action. September 1983.

Owyhee Breaks WSA, OR-3-59. Northeast side of WSA looking southwest down onto Birch Creek Ranch (the WSA is in the background beyond the ranch at lower center). Within area recommended suitable under the proposed action. The Owyhee River, visible adjacent to the ranch, flows pass the bluffs in the center of the photo. The Hole-in-the-Ground is visible at upper right. September 1983.
Appendix to the
Wilderness Environmental Impact Statement
for Oregon

Blue Canyon Wilderness Study Area
(OR-3-73)

1. Introduction

General Description of Study Area

The Blue Canyon Wilderness Study Area (WSA) is in Malheur County, approximately 47 miles southwest of Vale, 20 miles northwest of U.S. Highway 95, and 26 miles northwest of Jordan Valley (see Map 1).

The WSA contains 12,700 acres of public land (see Map 2). Also, there is a 40-acre private inholding located near the southeastern boundary.

The study area is oblong, approximately 9 miles long, and 5 miles wide at its widest point. It is bordered by high standard dirt roads in the northeast, southeast and southwest, and by private and Bureau of Reclamation-administered land on the north, west and east. Four parcels of private property abut the study area along the west and east borders. A 2-mile-long dead-end road enters the study area from the southeast, forming part of the boundary. The road dead-ends at three jasper mines along Diamond Butte Ridge. The Owyhee River and Reservoir parallel the west and north boundaries within 1 mile of the WSA.

A razorback ridge bisects the WSA in a north-south orientation, culminating at Diamond Butte in the northern end of the WSA. The main ridge is hilly and cut by numerous drainages along its flanks. West of the ridge, a "breaks" type topography composed of canyons, incised drainages, rock outcrops and exposed sediments is characteristic. East of the ridge, the terrain is generally hilly, with talus and bands of rimrock on many of the steeper slopes.

Sagebrush and grasses are the characteristic plants within the WSA. Junipers are scattered along the drainages, and in moist pockets, willows, mock orange, currants and roses are found.

Interrelationships

The WSA is adjacent to the Owyhee Breaks WSA (OR-3-59) on the southwest and separated from it by a road. The WSA is also part of a complex of WSAs that extends along the Owyhee River and Reservoir, from the Idaho/Oregon stateline to the north end of the Owyhee Reservoir.

A portion of the Owyhee River Area of Critical Environmental Concern (ACEC) falls within the WSA (see Map 3). Special management to protect the values of the ACEC includes the following:

- limiting ORV use to designated roads and trails,
- erecting barriers and signs to deter ORV use and protect the fragile habitat,
- continuing river patrols during high use periods to monitor and prevent overuse which might damage the sensitive values,
- conducting studies of river carrying capacity, and then reevaluating river use to prevent damage to sensitive plants, fish and wildlife habitat, and
- denying surface occupancy on mineral leases.

These restrictions for the ACEC would continue to apply within the WSA regardless of whether or not the area is designated wilderness.

The portion of the Owyhee River adjacent to the WSA is part of a 50-mile segment of the river that has been designated a wild river component of the National Wild and Scenic Rivers System. The Federal designation withdraws from mineral location and leasing all public lands within 0.25 mile on each side of the river.

The WSA is bordered on the west and north by land administered by the Bureau of Reclamation in connection with their management of the Owyhee Reservoir.

A portion of the land along the Owyhee River is part of a power site reserve, which earmarks the land for...
potential water power and water storage development. This "withdrawal" will be reviewed because of the wild river designation, which should lead to its revocation. Power site development is not foreseen and therefore not discussed further.

The WSA is located within the Oregon Department of Fish and Wildlife's (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports a yearlong population of approximately 50 mule deer and 20 pronghorn antelope. ODFW manages the Owyhee herd to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. The Owyhee River is used during the winter by approximately 20 to 30 northern bald eagles. The northern bald eagle is currently listed as a Federal threatened species in Oregon. The ODFW management goal for nongame wildlife is to maintain naturally-occurring populations at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on energy and mineral exploration and development,
- impact on mule deer, antelope, northern bald eagles and other raptors,
- impact on vegetation,
- impact on watershed,
- impact on livestock grazing and management in the WSA, and
- impact on the private inholding (effects of wilderness designation on private lands are discussed in the Statewide EIS Volume),

The following topic was also considered, but was not analyzed for this WSA because its environmental significance or concern was not major to the decision process.

- impact of projected development of existing picture jasper claims on wilderness and other resource values: such actions are not BLM actions nor are they a function of the alternatives. Projected development of the claims assumes they would possess valid existing rights. As such, development could occur whether or not the area is designated wilderness.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness (proposed action)
- no wilderness/no action

An alternative that would combine this WSA with Owyhee Breaks WSA by closing the Birch Creek road which separates them is not analyzed because the road provides the only access to existing facilities at Birch Creek Ranch. However, Blue Canyon WSA, Owyhee Breaks WSA and the other WSAs along the Owyhee River and Reservoir could be managed as separate units within an Owyhee River and Reservoir wilderness complex.

Partial wilderness and enhanced wilderness alternatives are not analyzed because there are no major resource conflicts or manageability problems that would be reduced or eliminated through boundary adjustments.
All Wilderness (Proposed Action)

Under the all wilderness alternative, 12,700 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the 40-acre private inholding would not be acquired, and the dead-end road leading to mining claims would remain open.

Energy and Mineral Development Actions

Wilderness designation would close 12,700 acres of public land within the WSA to mineral entry. A 40-acre private inholding would be open to mineral exploration and development at the landowners’ discretion.

Exploration for energy resources would be prohibited on 12,700 acres, including geothermal resources and oil and gas, which have a moderate potential for occurrence based on indirect evidence. Due to the small acreage of the private parcel (40 acres), only casual non-surface-disturbing exploration (without development) is postulated for energy resources.

Exploration for mineral resources would be prohibited on 12,700 acres, including gemstones (picture jasper), which has a high potential for occurrence over the entire area based on abundant direct and indirect evidence; gold and silver, which have moderate potential for occurrence on approximately 4,260 acres in the western portion of the WSA based on indirect evidence; and bentonite and zeolites, which have moderate potential for occurrence over the entire area based on indirect evidence. Continued development of picture jasper is postulated to occur on seven lode mining claims in the southwestern portion of the WSA. This effort would involve five mining operations and would consist of blasting, sizing and removal of the jasper. The resulting surface disturbance would be approximately 25 acres, including 1.25 miles of new road construction. Due to a lack of direct geologic evidence indicating favorability and an absence of confirmed mineral deposits, only casual non-surface-disturbing exploration (without development) is postulated for bentonite and zeolite on the 40-acre parcel of private land.

Total surface disturbance resulting from energy and mineral exploration/development is projected to be 25 acres, including 1.25 miles of new road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 1,493 AUMs in the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. One mile of fence would be constructed to allow a change in livestock management to improve upland range vegetation. Vehicle use for day-to-day livestock management on 6 miles of ways would be precluded. Management of livestock and maintenance of 2 miles of fence would be conducted mainly on horseback.

Recreation Management Actions

The entire 12,700 acres of public land (excluding the dead-end road) would be closed to vehicle use. Presently, vehicle use is limited by vehicle designation to 6 miles of existing ways and the 2-mile-long dead-end road. Current recreation use is estimated to be 1,000 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 12,700 acres of public land in the WSA would be open to mineral entry. In addition, a 40-acre parcel of private land would be open to mineral exploration and development at the landowners’ discretion.
Exploration for geothermal resources, which have a moderate potential for occurrence based on direct evidence, is postulated to occur. This effort would most likely consist of geologic mapping and geophysical surveys (gravity, resistivity, magneto telluric, etc.), followed by the drilling of two geothermal gradient holes 4,000 feet deep, probably in the eastern and southern portions of the WSA. The resulting surface disturbance would be approximately two acres, including 1 mile of new road construction. As there are no residences or businesses in the WSA that could use geothermal energy as a direct heat source, and the discovery of thermal waters hot enough for electrical generation is not expected, no development of this energy resource is projected. Due to a lack of direct geologic evidence indicating favorability, an absence of confirmed petroleum formations, a relatively thick volcanic cover, and an absence of existing mineral leases, only casual non-surface-disturbing exploration (with no development) is postulated for oil and gas.

Exploration/development efforts for gemstones (picture jasper), which has a high potential for occurrence based on abundant direct and indirect evidence, is postulated to occur throughout the WSA. Initially, this effort would involve continued development of five jasper mines contained on seven lode mining claims, located in the southwestern portion of the WSA. Development activities would consist of blasting, sizing and removal of the jasper, and would result in approximately 25 acres of surface disturbance, including 1.25 miles of new road construction. Exploration for new sources of picture jasper is postulated to occur throughout the WSA and would most likely consist of surface examination for jasper, followed by the development of one new operation, probably in the northeastern portion of the WSA. This operation would be essentially the same as the existing ones and would involve five acres of surface disturbance, including 0.25 miles of new road construction. Total development of the picture jasper resource is postulated to include six surface mines, resulting in 30 acres of surface disturbance, including 1.5 miles of new road construction.

As picture jasper is an indicator of gold/silver mineralization, exploration for these metals (which have a moderate potential for occurrence on 4,260 acres in the western portion of the WSA, based on indirect evidence) is projected to occur. This effort would most likely consist of surface examination and sampling, followed by core drilling in areas where the jasper was found. These tests may involve up to four core holes (two in the north, one in the south, and one in the east) and may disturb two acres, including 1 mile of new road construction. The discovery of an economic gold/silver deposit is not expected and no development is projected.

Due to a lack of direct geologic evidence indicating favorability and a lack of confirmed deposits, only casual non-surface-disturbing exploration (with no development) is postulated for bentonite and zeolite, which have moderate potentials for occurrence, based on indirect evidence.

Total surface disturbance resulting from energy and mineral exploration/development is projected to be 34 acres, including 3.5 miles of new road construction.

**Wildlife Habitat Management Actions**

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

**Livestock Management Actions**

Livestock grazing use would continue at the current level of 1,493 AUMs in the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. One mile of fence would be built to allow a change in livestock management which would allow improvement of upland range vegetation. Four springs would be developed to improve livestock distribution. Vehicle use for livestock management and maintenance of the 2 miles of fence would continue on 6 miles of ways. The ways are used one to five times per year to check livestock, spread salt and maintain facilities.

**Recreation Management Actions**

Vehicle use would continue to be limited to 6 miles of existing ways and the 2-mile-long dead-end road. Current recreation use is estimated to be 1,000 visitor days per year.
Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. Fourteen interior, unnatural features influence approximately 760 acres (six percent of the WSA). These features include six ways (totaling 6 miles), three fences (totaling 2 miles), a rock corral (abandoned wild horse trap), and portions of three active jasper mines. Most of these features are located in the southern portion of the WSA.

The three mines lie along a jagged, steep, switchback road which climbs down the open, western slope of Diamond Butte Ridge from its highest point. They are located on three existing claims at the end of the dead-end road that forms part of the WSA boundary, and are highly visible from within a portion of the WSA. During the wilderness inventory process, the WSA boundaries were drawn to exclude the disturbance associated with these mines (as well as disturbance on two adjacent, but currently inactive claims) from the WSA. Since then, the claim holder has continued to develop the mines in accordance with his legal right to proceed at a logical pace and progression, and in the same manner and degree, resulting in some surface disturbance within the WSA boundaries. Mine tailings have been pushed down the slope, causing marked color contrasts which emphasize the mine locations.

Unnatural features outside the WSA that affect the naturalness of the area consist of roads and ways (including boundary roads and the access road to active mines on Diamond Butte Ridge), portions of the three existing mines, reservoirs, a fence, the Birch Creek and Glover ranches, and an area of brush control. Outside sights and sounds diminish the WSA's appearance of naturalness, particularly from the top of Diamond Butte Ridge, the highest part of the WSA.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Opportunities for solitude or primitive and unconfined recreation are outstanding in the WSA, primarily due to the steep, rugged topography of Blue Canyon and the scenic qualities of Diamond Butte. Topographic screening is good in the side canyons on the west side of Diamond Butte Ridge, and in Blue Canyon and its tributaries. Elsewhere in the WSA, there is little topographic screening. The narrow configuration (usually 1.5 miles or less) of the northern and southern ends of the WSA will restrict visitor movement, further reducing opportunities for solitude.

Mining on the west side of Diamond Butte Ridge limits opportunities for solitude in the area adjacent to the mines and on the slopes directly below the mines. The adverse impact of mining activities affects only these areas because topography screens the rest of the WSA.

Outside sights and sounds affecting the WSA's opportunities for solitude are minor and are associated with ranching, use of the access road to the active mines, infrequent use of boundary roads, and recreation on and around Owyhee Reservoir.

The canyons west of Diamond Butte Ridge, the top of the ridge, and Blue Canyon and its tributaries offer excellent hiking, sightseeing and photographic opportunities. The expansive vistas seen from the ridgetop are exceptional, encompassing badlands, buttes, dissected ridges, colorful sedimentary strata, rock spires, sage-covered tablelands and the Owyhee River. Because of the time required to reach the WSA, most hiking and sightseeing would be done in conjunction with river floating trips, or as part of overnight visits.

Other primitive recreation opportunities in the WSA include hunting, rockhounding, camping and bird-watching.

Special Features

The WSA's rugged topography, which includes dramatic erosional patterns, rock outcrops, cliffs, spires, and incised canyons, is of geologic interest and scenic value.
Numerous cliffs provide excellent nesting habitat for raptors including golden eagles and prairie falcons. Twenty to 30 northern bald eagles, a Federal threatened species in Oregon, use the Owyhee River and adjacent lands (including the WSA) for winter range.

Fourteen archeological sites have been identified within the WSA. These sites represent a significant diversity of type, making research potential high. The potential for finding additional sites is very high.

Diversity of the National Wilderness Preservation System

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is located in the Intermountain Sagebrush Province, and the potential natural vegetation is sagebrush-steppe. Big sagebrush/bluebunch wheatgrass is the major plant community.

Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, two are found in the WSA: the big sagebrush/bluebunch wheatgrass community, and alkaline vegetation mosaic with representative communities, including greasewood, shadscale, saltgrass, and spiny hopsage types.

Boise, Idaho is the only standard metropolitan statistical area with a population over 100,000 within five hours’ driving time of the WSA.

Energy and Mineral Development

Energy and mineral resources of Blue Canyon WSA were evaluated from available geologic data by TERRADATA, a consulting firm under contract with BLM. Technical details of the findings of the evaluation are incorporated in a TERRADATA report titled “Assessment of Geologic, Energy, Mineral Resources of Cedar Mountain Geologic Resource Area.” Using additional information such as general mineral resource information, mining claims and leases, BLM geologists reevaluated this report.

The WSA is within the Cedar Mountain geologic resource area which has been classified according to a rating system which indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the amount and quality of data on which the classification is based (confidence level). A description of the rating system is provided in the Statewide EIS Volume.

Mineral potential classifications for the WSA are shown in Table 3. Map 4 shows the portions of the WSA where gold and silver have moderate potential for occurrence.

Surface geologic material found in the Blue Canyon WSA consists largely of Late Tertiary volcanioclastic and clastic fluviatile and lacustrine deposits, with lesser amounts of Late Tertiary ash flow tuffs and Late Tertiary-Early Quaternary olivine basalts, minor local beds of volcanioclastic material and colluvium (coarse talus, landslide debris, etc.). The surface rocks are underlain by a thick accumulation of Tertiary volcanic and some sedimentary rocks. No pre-Tertiary rocks are known to be exposed in the WSA and it is not known what underlies the Cenozoic cover, since there has been no deep drilling in the area which has penetrated the Tertiary rocks. However, in so far as this area lies within the western margins of Late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic marine sediments may occur at depth.

Energy Resources

The entire WSA is considered to have a moderate potential for geothermal resources based on direct evidence, e.g., the presence of a thermal spring along its southwestern border, the evidence of recent (Late Tertiary and Early Quaternary) volcanism in its southern half, and the moderately high heat flow in the general area. Based on indirect evidence (inferred presence of pre-Tertiary marine sediments at depth), the entire WSA is considered to have a moderate potential for occurrence for oil and gas.

As of October 16, 1987, there were no geothermal or oil and gas leases in the WSA.

Mineral Resources

There are confirmed gemstone (picture jasper) deposits near the western border of the WSA and jasper-bearing material appears to underlie most of the area. Consequently, based on this abundant direct and indirect evidence, the entire WSA is considered to have high potential for the occurrence of picture jasper. This material is actively being mined from three mining claims located at the end of the 2-mile-long dead-end road in the southwestern portion of the WSA. Recent mining activity has also occurred on two mining claims located close to the three claims currently being mined, and on two other mining claims located 3 miles to the south (near the northeastern wall of Birch Creek Canyon). Only three
of the jasper claims are currently being worked; the other four claims are currently inactive. Since the WSA boundaries were established (during the wilderness inventory process), mining on the three active claims has continued at a logical pace and progression, and in the same manner and degree, in accordance with the claim holder’s legal rights. This continued development of the claims has brought mining activity and disturbance inside the WSA, although still on the claims.

Based on indirect evidence, approximately 4,260 acres along the western border of the WSA are considered to have moderate potential for the occurrence of gold and silver due to the known presence of picture jasper (an indicator of gold/silver mineralization) and a favorable geologic environment. Silver is a strategic/critical mineral, but there are no confirmed deposits in the WSA.

Again based on indirect evidence, the entire WSA is considered to have moderate potential for the occurrence of bentonite and zeolite due to the favorable host rocks (lacustrine tuffaceous sediments) and inferred presence.

As of October 16, 1987, there were seven lode mining claims in the Blue Canyon WSA, all located along the western border for picture jasper. Two of these claims are pre-FLPMA, with “grandfathered” rights. The two pre-FLPMA claims, as well as an adjacent claim, are currently being mined.

Vegetation

Vegetation throughout the WSA is characteristic of a sagebrush-steppe ecosystem. Most of the area is a big sagebrush/bluebunch wheatgrass community in mid-seral stage. Pockets of vegetation have reached late seral stage and the potential natural community because the terrain is rugged and inaccessible to livestock. Broom snakeweed, a low-growing, invasive shrub, occurs throughout the WSA. On the flats just above the Owyhee River, the alkaline soils support a salt desert shrub mosaic with such species as greasewood, shadscale, spiny hopsage and saltgrass. Herbaceous perennials in the sagebrush community include Indian paintbrush, phlox, wild onion and penstemon. A few scattered junipers can be found in the WSA. Birch Creek and several tributaries of Blue Canyon support riparian vegetation consisting of willows, mock orange, rose, and currants.

No threatened or endangered species are known to occur in the WSA.

Wildlife

Most wildlife habitat in the WSA is in good condition. Approximately 50 mule deer and 20 pronghorn antelope occupy the WSA throughout the year. Severe winter conditions occasionally force big game animals to the north into the Black Rocks area.

Rock cliffs in the canyon environment provide excellent nesting habitat for raptors including golden eagles and prairie falcons. Twenty to 30 northern bald eagles, a Federal threatened species in Oregon, use the Owyhee River and adjacent land for winter range.

Watershed

The Blue Canyon WSA contains within its boundaries several intermittent tributaries to the Owyhee River. The only perennial stream, Birch Creek, flows in and out of the WSA for approximately 3.5 miles along the southwestern border. In the past, Birch Creek was in fair to poor condition, exhibiting extensive rocky side channel bars and a wide stream channel. In 1965, grazing was changed from season-long (4/1-9/1) to spring (4/1-5/10) every year, and since then the stream has demonstrated tremendous growth in herbaceous vegetation and willows on the side channels. This has resulted in improved water quality, reduced sediment loads and improved overall channel conditions.

Watershed condition within the WSA is believed to be generally good.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Because the unit presently consists of only two pastures (one in Birch Creek drainage, and one on the uplands) proper rotational grazing cannot be practiced. Riparian vegetation in the Birch Creek pasture is not grazed later than early spring, thus placing critical season grazing each year on key grass species in the adjacent upland pasture.

Existing livestock developments (among the features listed in the naturalness section) include 2 miles of fence.
Livestock operators use motor vehicles on ways approximately one to five times per year to inspect and maintain the fence, check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to parts of the WSA, most of the livestock management is accomplished on horseback.

Recreation Use

Recreation in the WSA includes hiking, backpacking, sightseeing, photography, bird watching, rock-hounding and hunting. Use of vehicles is limited by vehicle designation to existing roads and ways. Vehicle use is minor and is usually associated with activities such as hunting, sightseeing and rock-hounding.

Recreational activities on the Owyhee River and Reservoir attract many people to this area. Some of these visitors take advantage of recreational opportunities within the WSA.

Overall recreation use in the WSA amounts to approximately 1,000 visitor days per year.

Local Personal Income

Livestock use at the current level of 1,493 AUMs and recreation use totaling 1,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $17,916 for livestock grazing and $12,000 related to recreation use of the WSA, for an overall total of $29,916. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness (Proposed Action)

Recommended suitable for wilderness: 12,700 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All 12,700 acres of the WSA would be designated wilderness. Wilderness values within the entire 12,700 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features, including rugged topography of geologic interest, raptor nesting habitat, northern bald eagle winter range, and numerous archeological sites would also be protected.

Naturalness

The WSA's naturalness (approximately 94 percent is not influenced by internal, unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of 6 miles of ways, which influence approximately 670 acres (slightly more than five percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, vegetation would make the ways substantially unnoticeable.

A proposed fence in the southern portion of the WSA would likely be allowed because it would enhance wilderness values by protecting natural processes and restoring deteriorated habitat. The construction of 1 mile of fence would allow a shift in grazing rotation that would protect and enhance native vegetation in upland areas. The fence itself, as an unnatural feature would influence approximately 100 acres.

Solitude

Opportunities for solitude would be improved through the elimination of motorized vehicle use on 6 miles of ways. Vehicles would be limited to the boundary roads and the dead-end road leading to mines on Diamond Butte Ridge. Most importantly, closure of the ways would eliminate vehicles from a 1-mile-long way in Blue Canyon, providing a larger core area free from vehicle disturbances.

There would be a temporary disruption of opportunities for solitude during construction of the proposed fence.
Primitive and Unconfined Recreation

Closure of 6 miles of ways to vehicles would increase opportunities for primitive and unconfined recreation activities such as hiking, sightseeing, backpacking and photography by providing a larger core area, free from vehicle disturbances, in which these activities could occur. Revegetation of the ways would improve the quality of these activities by providing a more natural, primitive, wild setting.

Construction of 1 mile of fence would have little impact on primitive recreation opportunities. However, the fence would protect native vegetation and upland wildlife habitat, thereby preserving a natural setting for primitive recreation.

Special Features

Revegetation of closed ways would enhance scenic values by removing the impact of vehicle tracks from the WSA.

Conclusion: Wilderness designation of the entire 12,700 acres within the WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 12,700 acres of public land within the WSA to mineral entry. A 40-acre parcel of private land would be open to mineral exploration and development at the landowners’ discretion.

Energy Development

Exploration for energy resources, including geothermal resources and oil/gas, would be precluded on 12,700 acres. As a result of wilderness designation, the drilling of two geothermal gradient holes would be forgone. No energy development has been projected because there is insufficient geologic evidence to justify a serious development effort.

Conclusion: No impact on energy development is expected.

Mineral Development

Exploration for mineral resources, including picture jasper, gold, silver, bentonite and zeolite, would be precluded on 12,700 acres. As a result of wilderness designation, the drilling of four gold/silver exploratory core holes and production from one projected picture jasper surface mine would be precluded. No gold/silver production is projected.

Continued development of picture jasper from seven lode mining claims with possible “valid existing rights”, located in the southwestern portion of the WSA, is projected to occur. This effort would involve five mines, including continued work on the three currently active mines and resumed work on two currently inactive claims located 3 miles south of the active mines.

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual non-surface-disturbing exploration (without development) is postulated for bentonite and zeolite on the 40-acre parcel of private land.

Conclusion: Wilderness designation would result in forgone production from one projected picture jasper mine. Production from five picture jasper mines on existing claims would occur.

Impacts on Vegetation

Six miles of ways, once closed to vehicles, would revegetate within three to five years.

One mile of fence would be constructed to permit better management of livestock by creating two upland pastures. This would permit the implementation of proper rotational grazing and would promote advancement of seral stages in the upland areas, thus allowing upland vegetation to approach its potential natural community.

Conclusion: Six miles of ways would revegetate. Upland vegetation in mid-seral stage would advance to potential natural community.

Impacts on Wildlife

Wildlife habitat for approximately 50 mule deer, 20 antelope, northern bald eagles and other raptors, and nongame wildlife species would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Construction of 1 mile of fence would enhance upland wildlife habitat by facilitating a better grazing system which would allow more and better quality wildlife forage and cover, especially for mule deer and antelope.
Closure of 6 miles of ways would reduce minor vehicle disturbances of wildlife, especially benefiting mule deer.

Conclusion: Wildlife habitat and populations would be maintained or enhanced throughout the WSA.

Impacts on Watershed

Closure of 6 miles of ways would benefit watershed condition by increasing hillslope stability and decreasing potential erosion.

Conclusion: Watershed condition would remain unchanged or improve.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,493 AUMs within the portions of the two allotments in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 6 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and slight increase in cost to livestock operators.

Development of four springs would be precluded, resulting in the foregone opportunity to improve livestock distribution.

One mile of fence would be constructed to permit a change in livestock management that would allow improvement of upland range condition. Currently, there is only a single upland pasture, so it is grazed every year. Construction of a fence would create two upland pastures, thereby allowing implementation of rotational grazing.

Conclusion: Livestock use would remain at 1,493 AUMs. There would be some inconvenience and slight increase in cost to livestock operators. Improved livestock distribution would be foregone. Upland range condition would improve.

Impacts on Recreation Use

Closing 6 miles of ways to vehicles would cause a slight reduction in hunting, rockhounding and vehicle-based sightseeing. Since little motorized recreation occurs in the WSA, the impact would be minor. Any decrease in recreation use resulting from the way closures would be offset by increases in primitive recreation use resulting from a larger vehicle-free core area. The 2-mile-long dead-end road to the mines on Diamond Butte Ridge would remain open, providing continued vehicle access to the ridge.

Overall recreational use of the WSA would increase as public awareness grows of existing wilderness qualities within the WSA. Increasing recreational use of the Owyhee River and Reservoir would continue to attract more people to the vicinity of the WSA. Some of these people would visit the WSA, contributing to increased recreational use. The overall recreation use level is projected to increase from the current level of approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.

Conclusion: Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,493 AUMs and overall recreation use would increase by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

No Wilderness/No Action

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 12,700 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 12,700 acres would not be designated wilderness, and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area’s special features (including rugged topography of geologic interest, raptor nesting habitat, northern bald eagle winter range, and numerous archeological sites) would be subject to the effects of the projected management actions. Projected actions include energy and mineral exploration and development, construction of 1 mile of fence, development of four springs, continued use of vehicles for livestock management and facility inspection/maintenance,
continued recreational vehicle use limited to existing roads and ways, and continued application of restrictions associated with the Owyhee River ACEC.

**Naturalness**

Continued vehicle use on 6 miles of ways would maintain the impact of vehicle tracks upon naturalness on approximately 670 acres (slightly more than five percent of the WSA).

Energy and mineral exploration would result in 6 drill sites, 2 miles of new roads and 4 acres of surface disturbance. Most drill sites would be near the WSA boundaries. All roads and surface disturbance would be reclaimed and revegetated after completion of exploration activities, so the impact on naturalness would be short term.

Continued jasper development on three currently active mines and resumed jasper development on two currently inactive mines would cause approximately 25 acres of surface disturbance, including 1.25 miles of new road construction. Continued development of the active mines would visually influence naturalness only in areas that are already influenced by mining disturbance (approximately 425 acres), so would not increase the acreage affected by mineral development. Resumed development on the inactive mines would increase by approximately 200 acres the area on which naturalness is influenced by mining activity.

Development of an additional picture jasper mine at the northern end of the WSA would cause approximately five acres of surface disturbance, including 0.25 mile of new road construction. The mine would have a long-term impact upon naturalness on approximately 100 acres near the WSA's boundary. Its location in the northern tip of the WSA, near the boundary, would protect the rest of the WSA from the mine's influence.

Construction of 1 mile of fence would protect and enhance native upland vegetation, but would adversely influence naturalness on approximately 100 acres.

Development of four springs would influence naturalness on approximately 100 acres in the eastern portion of the WSA.

In total, projected management actions within the WSA, including mineral development and range projects, would cause at least 30 acres of long-term surface disturbance and have a long-term visual influence on the naturalness of approximately 925 acres. Some of this influence would occur in areas already influenced by existing unnatural features.

**Solitude**

Continued vehicle use on 6 miles of ways and human activity associated with mineral exploration would cause short-term, local impairment of solitude opportunities adjacent to the activity. There would be a temporary disruption of opportunities for solitude during the construction of the proposed fence and four springs.

Continued or resumed development of existing jasper mines would cause direct, long-term impairment of opportunities for solitude in adjacent areas and on access roads. Noise and activity associated with mineral development already limit opportunities for solitude in the area around the three currently active mines, so there would be no additional impact from these operations. Resumed mineral development on two currently inactive claims in the southern portion of the WSA would increase by 200 acres the area in which opportunities for solitude are impaired by mining activity.

Development of an additional picture jasper mine at the northern end of the WSA would impair solitude opportunities on approximately 100 acres near the WSA's boundary. Its location would minimize the mine's impact on all but the adjacent area.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of 6 miles of ways.

Energy and mineral exploration would have a short-term, local impact on primitive and unconfined recreation by temporarily displacing wildlife, and increasing noise, human activity and disturbance in areas adjacent to exploration sites.

Continued development on three currently active jasper mines and resumed development on two currently inactive jasper mines would have a long-term influence on primitive and unconfined recreation in the southern portion of the WSA. Wildlife would be displaced, vehicles would operate on the access roads, and the natural setting upon which primitive recreation depends would be degraded. Projected development of a new jasper mine at the northern end of the WSA would extend the adverse impacts of mineral development to approximately 100 acres in this area.

Construction of 1 mile of fence would have the same impact as under the all wilderness alternative. The
fence would have little influence on opportunities for primitive and unconfined recreation, but would enhance the natural setting by protecting native vegetation and upland wildlife habitat.

Development of four springs would benefit primitive recreation opportunities by providing dependable water sources where none currently exist. This would facilitate use of the WSA’s core area.

**Special Features**

Continued development on three currently active mines, resumed development on two currently inactive mines and projected development of a new mine would degrade geologic scenery.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 925 acres (over seven percent of the WSA), with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

All of the 12,700 acres of public land in the WSA would be open to mineral entry.

**Energy Development**

Exploration for geothermal resources is projected to include the drilling of two geothermal gradient wells. The discovery of thermal waters hot enough for electrical generation is not expected, nor are there residences or businesses close enough to use geothermal energy as a source of direct heat. Consequently, no development has been projected. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program for oil and gas, only casual non-surface-disturbing exploration (without development) is projected.

**Conclusion:** There would be no impact on energy development.

**Mineral Development**

Exploration/development of picture jasper is postulated to include the continued development of jasper on seven mining claims (containing three currently active mines and two currently inactive mines) in the southwestern portion of the WSA and the development of a new mine in the northeastern portion of the WSA.

Exploration for gold/silver (in association with picture jasper) is postulated to include the drilling of four core holes. The discovery of an economic gold/silver deposit is not expected and no development is projected.

Due to a lack of sufficient geologic evidence to justify an extensive exploration program for bentonite and zeolite only casual non-surface-disturbing exploration (without development) is postulated.

**Conclusion:** There would be no impact on mineral development. Production from six picture jasper mines would occur.

**Impacts on Vegetation**

Under this alternative, development of six jasper mines would have a long-term impact on vegetation within the WSA by removing vegetation on 30 acres, including 1.5 miles of new roads.

Exploratory drill site core holes for gold/silver and geothermal resources would cause short-term disturbance of vegetation on four acres, including the drill sites and 2 miles of access roads. All disturbed areas would revegetate within three to five years if no further development occurs.

As described in the all wilderness alternative, 1 mile of fence would be constructed in the WSA, allowing an improvement of upland range vegetation. Development of four springs would improve livestock distribution in the WSA by dispersing cattle from more heavily grazed locations into areas presently ungrazed. As a result of combining proper grazing rotation due to the additional fencing, and better livestock distribution due to spring developments, vegetation overall would advance from mid to late seral stage. Grazing in the vicinity of the springs would result in higher utilization levels of key grass species, giving a more grazed appearance on approximately five acres per spring.

**Conclusion:** Vegetation would be removed on 30 acres. Vegetation would be temporarily disturbed on four acres. Upland range would advance from mid to late seral stage.

**Impacts on Wildlife**

Wildlife habitat for approximately 50 mule deer, 20 antelope, northern bald eagles and other raptors, and nongame wildlife species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals.
Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans.

Activity related to minerals exploration on public land would cause minor and temporary wildlife displacement and habitat losses for game and nongame species with construction of 2 miles of roads and four acres of surface disturbance. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities cease, habitat is rehabilitated, and roads constructed for exploration are closed.

Activity related to mineral development would cause long-term habitat losses on 30 acres and result in construction of 1.5 miles of roads. During development activities, fewer than 10 mule deer would be displaced to adjacent suitable habitats due to direct habitat losses and increased human disturbance.

Construction of 1 mile of fence would enhance upland wildlife habitat by facilitating a better grazing system which would allow more and better quality wildlife forage and cover, especially for mule deer and antelope. Proposed spring developments would have little impact on wildlife since the current distribution of water sources is already adequate.

**Conclusion:** Thirty acres of wildlife habitat would be lost, and fewer than 10 mule deer would be displaced. Wildlife habitat would be maintained or enhanced in areas outside mineral development sites.

**Impacts on Watershed**

Under the no wilderness alternative, one of the six jasper mines and two of the four gold drill core holes would impact watershed condition and water quality. The jasper mines and core holes would be located on very steep side slopes adjacent to intermittent creeks, causing slope instability and increased sedimentation of intermittent streams, Birch Creek and off-site in the Owyhee River.

**Conclusion:** Water quality and watershed condition would decline slightly in Birch Creek and on intermittent streams near mining activity and would remain unchanged elsewhere.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 1,493 AUMs within the portions of the two allotments in the WSA.

One mile of fence would be constructed to permit a change in livestock management that would allow improvement of upland range condition. Currently, there is only a single upland pasture, so it is grazed every year. Construction of a fence would create two upland pastures, thereby allowing implementation of rotational grazing.

Vehicle use for livestock management and facility inspection/maintenance of 2 miles of fence would continue on 6 miles of ways. Four springs would be developed, improving livestock distribution.

**Conclusion:** Livestock use would remain at 1,493 AUMs. Livestock distribution would improve. Upland range condition would improve.

**Impacts on Recreation Use**

Motorized recreation use would continue on 6 miles of ways and the dead-end access road to the jasper mines on Diamond Butte Ridge. However, since little motorized recreation occurs in the WSA and no increase in motorized use is projected, the impact on recreation use would be minor.

Energy and mineral exploration would cause temporary declines in recreation use in areas adjacent to exploration sites because of increased noise and human activity, displacement of wildlife, and disturbance to the natural setting.

Continued mineral development on five existing jasper mines (three currently active mines and two currently inactive mines) would discourage recreation in adjacent areas, the same impact as under the all wilderness alternative. Development of a new jasper mine in the northern end of the WSA would discourage recreation on an additional 100 acres.

Development of four springs would encourage more hiking and camping use of areas within the WSA that currently lack reliable water sources.

Increasing recreational use of the Owyhee River and Reservoir would continue to attract more people to the vicinity of the WSA. Some of these people would visit the WSA, contributing to increased recreational use. The overall recreation use level is projected to increase from the current level of approximately 1,000 visitor days per year to approximately 1,300 visitor days per year.

**Conclusion:** Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,300 visitor days per year.
Impacts on Local Personal Income

Livestock grazing would remain at 1,493 AUMs. Projected energy and mineral development would amount to one non-metallic mine. Overall recreation use would increase by 300 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $3,600 per year, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $4,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (All Wilderness), projected energy and mineral exploration on 12,700 acres, production from one picture jasper mine and improved livestock distribution from four proposed springs would be foregone. Vehicle use would be excluded (except on the 2-mile-long dead-end road), eliminating opportunities for those who prefer this type of recreation, and causing minor inconvenience for livestock operators.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue, with some added minor inconvenience to livestock operators resulting from exclusion of vehicles for day-to-day inspection activities. Vehicle-based recreation would be replaced by primitive, non-motorized recreation. Long-term productivity of upland range areas would be enhanced by construction of 1 mile of fence. The long-term productivity of wilderness values would be preserved and enhanced on 12,700 acres.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource from projected activities.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

This area is capable of being managed to preserve its wilderness characteristics, however there would be some difficulties. Potential development on the 40-acre private inholding and on private land adjacent to the WSA is not anticipated, however should it occur, such development would adversely influence wilderness values.

There are seven existing mining claims in the southern portion of the WSA. The claims may possess "valid existing rights", so development could continue even after wilderness designation, making manageability as wilderness difficult in these areas. Development of the five claims on Diamond Butte Ridge, at the end of the dead-end road, would influence only those areas already influenced by mining activity, so would cause no additional management problems. Development of the two claims located 3 miles south of the Diamond Butte Ridge claims would influence only 200 acres in the vicinity of the mines. Since the area's topography would screen the rest of the WSA from the mines' influence, it would still be possible to manage the overall study area as wilderness.

Rationale for Selection of the Proposed Action

In the Draft EIS, no wilderness/no action was the proposed action. In response to public comments, a reevaluation of the WSA was undertaken, and the proposed action was changed to all wilderness. Factors which contributed to the change in proposed action are:

• the possibility of Blue Canyon WSA being managed as a unit of an Owyhee River and Reservoir wilderness complex,

• the possible revocation of Bureau of Reclamation withdrawals along the Owyhee River, which would allow these lands to be considered for addition to the WSA, thereby raising the WSA's wilderness values by making it possible to extend the WSA boundary to include a portion of the Owyhee River, a Wild and Scenic River,
• precedent which allows designation of wilderness despite incompatible sights and sounds on adjacent land, and

• reconsideration of the capability to manage the area as wilderness.

The all wilderness alternative is the proposed action because the benefits of preserving the area’s wilderness values would outweigh the benefits of maintaining options for exploration and development of energy and mineral resources, continued vehicle use on 6 miles of ways, and development of four springs.


Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: A combination of areas surrounding the Owyhee Reservoir would protect watersheds and other natural resources. Response: This alternative was not analyzed due to the private and Bureau of Reclamation lands separating 3-73 from its closest WSA neighbor along the reservoir, 3-56 (Dry Creek Buttes WSA). For further discussion of alternatives considered but not analyzed, see Section 2, Description of Alternatives.

Comment: The north boundary is poorly drawn. It is a way and is washed out. Response: The boundary in question is described as a road in section 1, Introduction, General Description of Study Area. During the inventory phase, it was identified as meeting the definition of a road since it had been built with mechanical means other than the passage of wheeled vehicles. See the Statewide Volume, Chapter 5, under the scoping section entitled, Issues Considered But Not Analyzed, for a discussion of inventory concerns.
Table 1. Summary of Proposed Management Under Each Alternative, Blue Canyon WSA (OR-3-73)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>12,700</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>12,700</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>12,700</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>1.25</td>
<td>1.5</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fences (Miles)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Springs (number)</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

¹Except for 2 miles of road and 6 miles of ways in the WSA, the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

Table 2. Summary of Environmental Consequences of Alternatives, Blue Canyon WSA (OR-3-73)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 12,700 acres would protect and enhance existing wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 925 acres (over 7 percent) of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one projected jasper mine. Production from five jasper mines on existing claims would occur.</td>
<td>There would be no impact on energy or mineral development. Production from six jasper mines would occur.</td>
</tr>
</tbody>
</table>
Table 2. Summary of Environmental Consequences of Alternatives, Blue Canyon WSA (OR-3-73) (continued)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vegetation</strong></td>
<td>Six miles of ways would revegetate. Upland range seral stage would advance.</td>
<td>Vegetation would be removed on 30 acres. Vegetation would be temporarily disturbed on 4 acres. Upland range seral stage would advance.</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td>Wildlife habitat and populations would be maintained or enhanced throughout the WSA.</td>
<td>Thirty acres of wildlife habitat would be lost, and fewer than ten mule deer would be displaced. Wildlife habitat would be maintained or enhanced in areas outside mineral development sites.</td>
</tr>
<tr>
<td><strong>Watershed</strong></td>
<td>Watershed condition would remain unchanged or improve.</td>
<td>Water quality and watershed condition would decline slightly in Birch Creek and in intermittent streams near mining activity, and would remain unchanged elsewhere.</td>
</tr>
<tr>
<td><strong>Livestock Grazing</strong></td>
<td>Livestock use would remain at 1,493 AUMs. The use of 6 miles of ways for livestock management would be precluded with some inconvenience and slight increase in cost to livestock operators. Improved livestock distribution would be foregone. Upland range condition would improve.</td>
<td>Livestock use would remain at 1,493 AUMs. Livestock distribution would improve. Upland range condition would improve.</td>
</tr>
<tr>
<td><strong>Recreation</strong></td>
<td>Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,500 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 1,000 visitor days per year to approximately 1,300 visitor days per year.</td>
</tr>
<tr>
<td><strong>Local Personal Income</strong></td>
<td>Annual local personal income would increase by approximately $6,000.</td>
<td>Annual local personal income would increase by approximately $4,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Blue Canyon WSA (OR-3-73)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (gold, silver)</td>
<td>See Map 4</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Gemstones (picture jasper)</td>
<td>Entire WSA</td>
<td>H</td>
<td>D</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accommodations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Use, Blue Canyon WSA (OR-3-73)

<table>
<thead>
<tr>
<th>Grazing</th>
<th>Licensed AUMs in Allot. 1/</th>
<th>Percent of Period of Use</th>
<th>Estimated Allot. in WSA</th>
<th>Current Allotment Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Rocks (0511)</td>
<td>1,358</td>
<td>12/01-4/01</td>
<td>71</td>
<td>1030</td>
</tr>
<tr>
<td>Birch Creek</td>
<td>1,099</td>
<td>4/01-5/10</td>
<td>59</td>
<td>463</td>
</tr>
<tr>
<td>Total</td>
<td>2,457</td>
<td></td>
<td></td>
<td>1,493</td>
</tr>
</tbody>
</table>

1/ Allotments were adjusted in 1982.
Table 5. Effects of Alternatives on Local Personal Income, Blue Canyon WSA (OR-3-73) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>+ 1</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+500</td>
<td>+ 300</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>$</td>
<td>0</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+6,000</td>
<td>+3,600</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+6,000</td>
<td>+3,600</td>
</tr>
</tbody>
</table>
To John Day
Baker Co.

To Baker

To Burns

NORTHERN MALHEUR PLANNING AREA

LEGEND

- Blue Canyon WSA
- Other WSA's

LOCATION MAP

U.S. Department of the Interior
Bureau of Land Management
Vale District
Blue Canyon WSA
OR-3-73

MAP 1
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private
- BLM Surface-State or Private Subsurface (Split Estate)

U.S. Department of the Interior
Bureau of Land Management
Vale District

Blue Canyon WSA
OR-3-73

LAND OWNERSHIP

MAP 2
229
Wilderness Study Area Boundary
Boundary of Adjacent Wilderness Study Areas
Owyhee River ACEC

U.S. Department of the Interior
Bureau of Land Management
Vale District

Blue Canyon WSA
OR-3-73

AREA OF CRITICAL ENVIRONMENTAL CONCERN

MAP 3
Moderate Potential (MB) for Gold and Silver

Entire WSA:
- Moderate Potential (MC) for Geothermal Resources
- Moderate Potential (MB) for Oil and Gas, Bentonite and Zeolites
- High Potential (HD) for Semiprecious Stones

U.S. Department of the Interior
Bureau of Land Management
Vale District

Blue Canyon WSA
OR-3-73

MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES
Blue Canyon WSA, OR-3-73. West side of WSA looking east into the WSA from Owyhee River (some of the slopes and bluffs include Bureau of Reclamation lands outside the WSA). Within area recommended suitable under the proposed action (all wilderness) alternative. September 1983.

Blue Canyon WSA, OR-3-73. Southern portion of WSA looking east at mining activity along the west face of WSA's central ridge. Within area recommended suitable under the proposed action (all wilderness) alternative. Mining road and adjacent disturbance are part of a dead-end interior boundary road. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Upper Leslie Gulch Wilderness Study Area (OR-3-74)

1. Introduction

General Description of Study Area

Upper Leslie Gulch Wilderness Study Area (WSA) is located 5 miles east of the Owyhee Reservoir in Malheur County, approximately 50 miles south of Vale (see Map 1). The nearest highway is U.S. Highway 95, approximately 27 miles to the southeast.

The WSA is roughly triangular with two extensions of land projecting due south. The study area is 2.5 miles long, 2.5 miles wide and contains 3,000 acres (see Map 2). All surface and mineral estate within the WSA is administered by BLM. The WSA is bounded on the north by a high standard gravel road, on the west by a maintained dirt road, on the south by private land, and on the east by a fenceline on public land.

The surface area of the WSA is overlain by thick volcanic deposits that have been cut by intermittent streams, resulting in a land pattern of alternating drainages and steep, north-south oriented ridges. Almost 85 percent of the WSA is composed of slopes with gradients exceeding 25 percent.

Natural vegetation consists mostly of sagebrush and bunchgrass. Western junipers are scattered throughout the area. Two groves of mountain mahogany totaling 240 acres are contained in the WSA.

Interrelationships

The Upper Leslie Gulch WSA is adjacent to the Slocum Creek WSA (OR-3-75) on the west. The two WSA s are separated by a road to a private ranch. The road is within a right-of-way which authorizes both access and regular maintenance. The Honeycombs WSA (OR-3-77A) is adjacent to the north, with an all-weather road as the common boundary.

The projecting finger of land and adjacent acreage at the WSA’s southeast corner (a total of 240 acres) have been designated as the Mahogany Ridge Research Natural Area (RNA). Ninety-four percent of the WSA’s remaining acreage (approximately 2,585 acres) has been designated as part of the Leslie Gulch Area of Critical Environmental Concern (ACEC). See Map 3 for the ACEC and RNA boundaries.

The ACEC was designated to protect endemic plants which are Federal candidate species for listing under the Endangered Species Act. Special management for the ACEC includes:

- continuation of grazing, managed to enhance or maintain existing vegetation,
- no new range improvements allowed, unless needed to protect ACEC values, and
- vehicles restricted to existing roads and ways.

These restrictions would continue to apply in the portion of the WSA within the ACEC whether or not the area is designated wilderness.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports approximately 25 California bighorn sheep (a Federal candidate species for listing under the Endangered Species Act) and about 50 mule deer, yearlong. A few Rocky Mountain elk from summer range on Mahogany Mountain winter in the unit. ODFW manages the Owyhee herd to produce 15 bucks per 100 does of mule deer and 15 bulls per 100 cows of elk. Bighorn sheep are managed to produce trophy-quality animals, thus hunter harvest is strictly controlled.

The proposed action for this WSA conforms with ODFW management goals for game and nongame species.
Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on nearby private land (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on energy and mineral exploration and development,
- impact on bighorn sheep, mule deer and Rocky Mountain elk,
- impact on special interest plants,
- impact on livestock grazing and management, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness (proposed action)
- no wilderness/no action

An enhanced alternative is not analyzed because there is no opportunity to substantially enhance wilderness values. A partial alternative is not analyzed because there is no opportunity to avoid conflicts from other resource uses by recommending only a portion of the WSA suitable as wilderness.

Public comments received while the EIS was being scoped suggested that this WSA be combined with the Honeycombs, Slocum Creek, Wild Horse Basin (OR-3-77B), Dry Creek (OR-3-53) and Dry Creek Buttes (OR-3-56) WSAs into a single wilderness area. This is not analyzed because the Dry Creek and Dry Creek Buttes WSAs are separated from the others by the Owyhee Reservoir. The reservoir and adjacent lands are managed by the Bureau of Reclamation and are not subject to wilderness review. Also, the Upper Leslie Gulch WSA is separated from the adjacent Honeycombs and Slocum Creek WSAs by roads which do not qualify for closure. The Leslie Gulch road, on the north, is an all-weather road which receives substantial use. The Dago Gulch road, on the west, is a private road within a right-of-way and provides access to a private ranch. Although this road cannot be closed, public use could be restricted by moving a locked gate currently located 1 mile south of the Leslie Gulch road to a new location at the Leslie Gulch road junction. It would also be possible to manage these six WSAs as separate units within a wilderness complex.

All Wilderness (Proposed Action)

Under the all wilderness alternative, 3,000 acres of public land would be recommended suitable as wilderness (see Map 2).

Energy and Mineral Development Actions

Wilderness designation would close 3,000 acres within the WSA to mineral entry. Exploration for energy resources, including oil and gas, would be prohibited on 3,000 acres. Exploration for mineral resources (including gold, tin, bentonite, zeolites, perlite and pumice) would be prohibited on 3,000 acres. No energy or mineral development activities have been projected.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with the BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Upper Leslie Gulch WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 250 AUMs within the portion of the allotment in the WSA. The season of use would remain as identified in Table 4. Management of livestock would continue to be conducted on horseback.

Recreation Management Actions

The entire 3,000 acres would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to existing roads and ways, none of which are located in the WSA.

Current recreation use is estimated to be 500 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

The entire 3,000-acre WSA would be open to mineral entry. Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum formations and mineral deposits, a thick volcanic cover, and a lack of existing mineral leases and mining claims, only casual non-surface-disturbing exploration (without development) is postulated for oil and gas, gold, tin, bentonite, zeolites, perlite and pumice.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Upper Leslie Gulch WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 250 AUMs within the portion of the allotment in the WSA. The season of use would remain as identified in Table 4. Management of livestock would continue to be conducted on horseback.

Recreation Management Actions

Vehicle use would continue to be limited by vehicle designation to existing roads and ways. Since there are no roads or ways in the WSA, vehicles would continue to be excluded.

Current recreation use is estimated to be 500 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.
Wilderness Values

Naturalness

The WSA appears generally natural. Three interior, unnatural features influence approximately 4.5 percent of the WSA. These features include an overgrown cattle trail (about 0.5 mile) that penetrates the southern extension, approximately 0.25 mile of fence that passes through the mahogany stands and forms a small portion of the southeastern boundary, and eight upright juniper posts with scattered wire strands among them.

Unnatural features outside the WSA that affect the naturalness of the area consist of the 2.5-mile-long fence forming the eastern boundary and the two boundary roads. The Leslie Gulch road is well-maintained and is used by approximately 3,000 vehicles annually. The Dago Gulch road, west of the WSA, is improved but lightly traveled.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The WSA offers outstanding opportunities for solitude and primitive and unconfined types of recreation. The major factor contributing to opportunities for solitude is the topographic screening provided by the steep and diverse terrain. All of the drainages offer excellent topographic screening because they are winding and steep-sided. However, as there are only three drainages and these are between 1 and 2 miles long, high recreation use levels would result in frequent contacts between visitors.

Outside sights and sounds affecting opportunities for solitude in the WSA consist of vehicle use on the boundary roads.

Opportunities for primitive recreation activities such as photography, geologic sightseeing and hiking are outstanding. The outstanding scenery, numerous geologic formations, bighorn sheep, and easy vehicle access provided by the well-maintained Leslie Gulch road would attract day hikers to the WSA. Backpacking opportunities are limited because of the WSA's small size.

Hunting opportunities are excellent for mule deer and chukar. A limited number of hunting permits for bighorn sheep are also issued each year.

Special Features

The Upper Leslie Gulch WSA contains spectacular geologic formations created by the weathering of Leslie Gulch ash-flow tuff. The tuff is exposed throughout the WSA, and may be as much as 2,000 feet thick. Its great thickness, uniformity and relative resistance to weathering gave rise to the impressive cliffs, outcrops and spires that characterize this WSA. Leslie Gulch tuff is also exposed in the Honeycombs, Slocum Creek, Dry Creek Buttes and Blue Canyon WSAs.

Scenery in the WSA is outstanding because of the geologic formations. The abundant and varied geologic features contribute color, diversity and stark beauty to the desert landscape.

Two dense groves of curlleaf mountain mahogany (Cercocarpus ledifolius), located on 240 acres in the southeast corner of the WSA, have been designated a Research Natural Area.

Five plant species of special interest are found in the WSA. Two of these species evolved and depend on the specific conditions offered by the WSA's tuffaceous deposits. (These plants are further discussed in the Vegetation section).

The rugged breaks and outcrops of this WSA form part of the Owyhee River bighorn sheep range. The WSA supports approximately 25 bighorn sheep, a Federal candidate species for listing under the Endangered Species Act.

A small, disjunct population of Rocky Mountain elk resides yearlong on Mahogany Mountain south of the WSA. About five of these elk winter in the WSA.

Diversity of the National Wilderness Preservation System

Based on the Bailey-Khchler method of classifying ecosystems, the study area is in the Intermountain Sagebrush Province and has the potential natural vegetation of a sagebrush steppe. The WSA contains the low sagebrush/bluebunch wheatgrass plant community listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan.

Boise, Idaho is the one standard metropolitan statistical area with a population over 100,000 within five hours' driving time of the WSA.
Energy and Mineral Development

The energy and mineral resources were evaluated from available geologic data supplemented by limited geochemical stream sediment sampling by Oregon Department of Geology and Mineral Industries (DOGAMI) under BLM contract. This geochemical survey became the primary basis for the metallic minerals classification in the WSA. The DOGAMI report is entitled “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” Using the DOGAMI report, the study area was reevaluated by BLM personnel.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (level of certainty). A description of the rating system is provided in the Statewide EIS volume.

The mineral potential classifications for the WSA are shown in Table 3.

Surface geologic material found in the WSA consists essentially of a thick sequence of Late Tertiary (Miocene) ash flow tuff and intercalated fluviatile and lacustrine volcanlastic and clastic sedimentary rocks deposited in a broad, north-plunging basin. No pre-Tertiary rocks are known to be exposed in the area and it is not known what underlies the Cenozoic cover, since there has been no deep drilling in the area that has penetrated the Tertiary rocks. However, as this area lies within the margins of late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic sediments may occur at depth.

Energy Resources

Based upon indirect evidence (inferred presence of pre-Tertiary marine sediments at depth and the fact that the WSA is situated within a sedimentary basin), the entire WSA is considered to have moderate potential for the occurrence of oil and gas.

As of October 16, 1987, there were no oil/gas or other mineral leases in the WSA.

Mineral Resources

No confirmed mineral deposits are located in the WSA. Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of gold, tin, bentonite, zeolite, perlite and pumice. This rating is due to the inferred presence of these minerals, anomalous values in stream sediment samples, and favorable rock types. Tin is a strategic and critical mineral, but no deposits have been found in the WSA.

As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Vegetation throughout the area is characteristic of a sagebrush steppe ecosystem interspersed with pockets of juniper and curleaved mountain mahogany. The most widespread plant species are sagebrush, western juniper and bunchgrasses. Two dense stands of curleaved mountain mahogany are located in the southeast corner of the study area. Western junipers occur over much of the study area, but never in dense stands. Bitterbrush is also found in portions of the WSA. Herbaceous perennials occur frequently in the area and include such species as Indian paintbrush, daisy fleabane, phlox, arrowleaf balsamroot and milk-vetch. Most of the area is in mid- to late seral stage, with pockets inaccessible to livestock at the potential natural community.

Five plant species of special interest (mentioned in the Special Features section) are found in the WSA. All are Federal candidate species for listing under the Endangered Species Act: Astragalus sterilis (sterile milk-vetch), Mentzelia packardiae (Packard’s blazing star), Senecio erterae (Ertter’s groundsel), Ivesia rhypara (grimy ivesia), and Trifolium owyheense (Owyhee clover). The groundsel and the blazing star are annual species specific to Leslie Gulch ash deposits. Globally, they are found only in this WSA and on the two adjacent WSAs to the west and north.

Wildlife

Approximately 200 California bighorn sheep occupy suitable habitat east of Owyhee Reservoir. The Upper Leslie Gulch WSA accounts for about 25 head in the herd. The present population has been built up from a transplant of 17 animals from British Columbia in 1965. California bighorns are native to eastern Oregon. Due to the size of the herd and good vehicle access on the Leslie Gulch road, ODFW plans to use sheep in the area as transplant stock for releases elsewhere in the State.

The WSA supports a yearlong mule deer herd of about 50 animals. An estimated five head of elk winter
in the unit and summer on Mahogany Mountain, which is close by.

**Watershed**

There are no perennial streams in this WSA.

**Livestock Grazing**

The WSA is located entirely within the Three Fingers grazing allotment. All public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Due to rugged topography and the absence of roads and ways in the WSA, all of the livestock management is accomplished on horseback.

**Recreation Use**

Recreation in the WSA includes hiking, sightseeing, photography and wildlife observation. Hunting opportunities are excellent because mule deer and chukars are plentiful, and a few hunting permits for bighorn sheep are issued each year. Most recreational use originates from the Leslie Gulch road.

Recreational use of the WSA is increasing along with the increased use of the Owyhee Reservoir. The excellent fishing and boating on the reservoir bring many people into the area, some of whom take advantage of the WSA's primitive recreation opportunities.

Overall recreation use in the WSA amounts to approximately 500 visitor days per year.

**Local Personal Income**

Livestock use at the current level of 250 AUMs and recreation use totaling 500 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $3,000 for livestock grazing and $6,000 related to recreation use of the WSA, for an overall total of $9,000. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

**4. Environmental Consequences**

**Introduction**

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

**Impacts of the Alternatives**

**All Wilderness (Proposed Action)**

Recommended suitable for wilderness: 3,000 acres
Recommended nonsuitable for wilderness: 0 acres

**Impacts on Wilderness Values**

All 3,000 acres of the WSA would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features including geologic formations, outstanding scenery, special interest plants, mountain mahogany groves, California bighorn sheep and Rocky Mountain elk would also be protected.

No development is projected for this WSA. The only projected management actions are closure of the entire 3,000 acres to vehicle use and the continued application of ACEC and RNA restrictions. Currently, vehicles are limited to existing roads and ways by vehicle designation. Since there are no roads or ways in this WSA, vehicles are already excluded. Under this alternative, there would be no impact on wilderness values.

**Conclusion:** Wilderness designation of 3,000 acres would result in protection of existing wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 3,000 acres within the WSA to mineral entry.
Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 3,000 acres. No energy development activities are projected because there is insufficient geologic evidence to justify an exploration and development program.

Conclusion: No impact on energy development is expected.

Mineral Development

Exploration for mineral resources (including gold, tin, bentonite, zeolites, perlite and pumice) would be precluded on 3,000 acres. No mineral development activities are projected because there is insufficient geologic evidence to justify an exploration and development program.

Conclusion: No impact on mineral development is expected.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation over most of the area. Vegetation composition, as described in the vegetation narrative in the Affected Environment section, would not be changed. Ecological condition, which is primarily in mid to late seral stage with pockets at the potential natural community, also would not change.

Recreational use is expected to increase in this WSA. Foot trails which may become established by increased recreational use would have a potential impact on the two special interest plant species (Ertter's groundsel and Packard's blazing star) which have specifically evolved on Leslie Gulch tuffaceous ash deposits. Both species grow on terrain flat enough to support foot trails that would pass through ash deposits where the plants grow. High levels of visitor use could reduce the survival of localized populations of these two annual species. However, monitoring and mitigation measures would be used to prevent or minimize impacts to these plants.

Conclusion: Two special interest plant species would be potentially threatened by increased visitor use. Little or no change is anticipated to vegetation over the rest of WSA.

Impacts on Wildlife

Wildlife habitat for approximately 25 bighorn sheep, 50 mule deer, 5 Rocky Mountain elk and nongame species would be maintained under wilderness designation. Wildlife would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM Wilderness Management Policy. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans.

There are no projected actions that would affect wildlife habitat or populations.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSA.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 250 AUMs within the portion of the allotment in the WSA.

The area is presently inaccessible to vehicles, so livestock management would continue to be accomplished by horseback.

Conclusion: Existing livestock use would remain at approximately 250 AUMs. There would be no impact on livestock grazing or management.

Impacts on Recreation Use

Overall recreation use would increase as public awareness grows of existing wilderness qualities within the WSA. In addition, increasing recreational use of the Owyhee Reservoir would bring more people into this area, some of whom would visit the WSA, contributing to higher recreation use levels. Overall recreation use is projected to increase from the current level of approximately 500 visitor days per year to approximately 750 visitor days per year.

Conclusion: Overall recreation use would increase from approximately 500 visitor days per year to approximately 750 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 250 AUMs and overall recreation use would increase by 250 visitor days per year.
Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $3,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $3,000.

No Wilderness/No Action

Recommended suitable for wilderness: 0 acres. Recommended nonsuitable for wilderness: 3,000 acres.

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 3,000 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features (including geologic formations, outstanding scenery, special interest plants, mountain mahogany groves, California bighorn sheep and Rocky Mountain elk) would be subject to the effects of projected management actions. Projected management actions include the continued application of restrictions associated with the Leslie Gulch ACEC and Mahogany Ridge RNA, and the continued application of vehicle designation restrictions limiting vehicles to existing roads and ways. Since there are no roads or ways in the WSA, vehicles would continue to be excluded.

Although no development is projected in this WSA, development options would remain open, with possible declines in wilderness values from development actions in the long term. ACEC, RNA and vehicle designation restrictions would continue to provide some protection for the WSA's wilderness values.

Conclusion: In the absence of wilderness designation, no management actions are projected that would impair wilderness values, however declines from other potential uses are possible over the long term.

Impacts on Energy and Mineral Development

The entire 3,000-acre WSA would be open to mineral entry.

Energy Development

Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (without development) is projected for oil and gas.

Conclusion: There would be no impact on energy development.

Mineral Development

Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (without development) is projected for gold, tin, bentonite, zeolites, perlite and pumice.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

Under this alternative, little or no change would take place to vegetation over most of the area. Vegetation composition, as described in the vegetation narrative in the Affected Environment section, would not be changed. Ecological condition also would not change.

As under the all wilderness alternative, increased recreation use of the WSA may reduce the survival of localized populations of two special interest plant species. However, monitoring and mitigation measures would prevent or minimize impacts to these plants.

The Leslie Gulch ACEC designation would continue to provide protection to special interest plants.

Conclusion: Two special interest plant species would be potentially threatened by increased visitor use. Little or no change is anticipated to vegetation over the rest of WSA.

Impacts on Wildlife

Wildlife habitat for approximately 25 bighorn sheep, 50 mule deer, 5 Rocky Mountain elk and nongame species would be maintained under this alternative. Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans.
The Leslie Gulch ACEC designation would continue to provide management guidance that would ensure protection of bighorn sheep habitat and avoid adverse impacts to their well-being.

**Conclusion:** Wildlife habitat and populations would be maintained throughout the WSA.

### Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 250 AUMs within the portion of the allotment in the WSA.

The WSA contains no roads or ways and is presently inaccessible to vehicles, so livestock management would continue to be accomplished by horseback.

**Conclusion:** Existing livestock use would remain at approximately 250 AUMs. There would be no impact on livestock grazing or management.

### Impacts on Recreation Use

No management actions are projected that would influence recreation use levels.

Overall recreation use would increase because increasing recreational use of the Owyhee Reservoir would bring more people into this area, some of whom would visit the WSA. Overall recreation use is projected to increase from the current level of approximately 500 visitor days per year to approximately 750 visitor days per year.

**Conclusion:** Overall recreation use would increase from approximately 500 visitor days per year to approximately 750 visitor days per year.

### Impacts on Local Personal Income

Livestock grazing would remain at 250 AUMs and overall recreation use would increase by 250 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $3,000 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $3,000.

### Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (All Wilderness), options for future energy and mineral exploration would be foregone.

### Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, existing short-term uses would continue. The long-term productivity of wilderness values would be preserved.

### Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource.

### 5. Wilderness Manageability and Rationale for the Proposed Action

#### Manageability of the Area as Wilderness

The WSA is capable of being managed to preserve its wilderness characteristics. Other than the projecting finger of land (approximately 200 acres) at the WSA's southeast corner, the WSA's configuration presents no major management problems. The projecting finger of land could be managed as wilderness (it is already managed as an RNA), but there would be some problems. It is very narrow and adjoins private land to the east, south and west. As a result, the finger's naturalness could be influenced by activities on adjacent land. Also, the boundaries are not easily identifiable and the narrowness restricts opportunities for solitude.

A potential problem also exists along the entire southern boundary which follows private land lines. This boundary does not follow recognizable surface...
features and is mostly unfenced, thereby making the boundary difficult to identify without surveying and signing.

Rationale for Selection of the Proposed Action

The all wilderness alternative is the proposed action because the benefits to be gained by preserving the area’s high wilderness values (which include outstanding opportunities for solitude and primitive recreation, spectacular geologic formations, outstanding scenery, a Research Natural Area, special interest plants, big horn sheep and elk) would outweigh the benefits of maintaining the option for mineral exploration. There is insufficient geologic evidence to justify a serious mineral exploration and development program.

The manageability problems related to the projecting finger of land at the WSA’s southeast corner are not expected to be major. This area is already managed as an RNA. Although the entire southern border is not easily identifiable for the average person, it could be signed if problems develop.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Expand the boundary to include the whole area containing special interest plants.  
Response: Most populations of special interest plants on public land in this area are already contained within this WSA or adjacent WSAs. Populations on private land cannot be included in the WSA because private land is not considered for wilderness designation.

Comment: Close the Leslie Gulch road.  
Response: The Leslie Gulch road is a well-used road, providing the primary access to the upper Owyhee Reservoir and the takeout point for floaters on the Owyhee River. It is not feasible to consider it for closure.

Comment: Combine this WSA with 3-75.  
Response: The road between 3-74 and 3-75 provides access to private property and is not eligible for closure. See Section 2, Description of Alternatives, for alternatives considered but not analyzed.
**Table 1. Summary of Proposed Management Under Each Alternative, Upper Leslie Gulch WSA (OR-3-74)**

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>3,000</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>3,000</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>3,000</td>
<td>0</td>
</tr>
</tbody>
</table>

¹Since there are no existing roads and ways in the WSA, all of the acreage shown is already closed to cross-country vehicle use through a “limited” ORV designation.

**Table 2. Summary of Environmental Consequences of Alternatives, Upper Leslie Gulch WSA (OR-3-74)**

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 3,000 acres would result in protection of existing wilderness values.</td>
<td>In the absence of wilderness designation, no management actions are projected that would impair wilderness values, however declines from other potential uses are possible over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy or mineral development is expected.</td>
<td>There would be no impact on energy or mineral development.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Two special interest plant species would be potentially threatened by increased visitor use. Little or no change is anticipated to vegetation over the rest of the WSA.</td>
<td>Two special interest plant species would be potentially threatened by increased visitor use. Little or no change is anticipated to vegetation over the rest of the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA.</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use would remain at 250 AUMs. There would be no impact on livestock grazing or management.</td>
<td>Existing livestock use would remain at 250 AUMs. There would be no impact on livestock grazing or management.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Overall recreation use would increase from approximately 500 visitor days per year to approximately 750 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 500 visitor days per year to approximately 750 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $3,000.</td>
<td>Annual local personal income would increase by approximately $3,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Upper Leslie Gulch WSA (OR 3-74)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (gold, tin)</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Perlite, Pumice</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
</tbody>
</table>

**Legend:**

- **Level of Potential**
  - O - No indication for accumulations of energy/mineral resource
  - L - Low potential for accommodations of energy/mineral resource
  - M - Moderate potential for accumulations of energy/mineral resource
  - H - High potential for accumulations of energy/mineral resource

- **Level of Certainty**
  - A - Insufficient data or no direct evidence
  - B - Indirect evidence available
  - C - Direct evidence but quantitatively minimal
  - D - Abundant direct and indirect evidence

### Table 4. Existing Livestock Use, Upper Leslie Gulch WSA (OR-3-74)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs In Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three Fingers</td>
<td>14,634</td>
<td>3/1-5/1</td>
<td>2</td>
<td>250</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Upper Leslie Gulch WSA (OR-3-74) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+250</td>
<td>+250</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+3,000</td>
<td>+3,000</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+3,000</td>
<td>+3,000</td>
</tr>
</tbody>
</table>
LEGEND

- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas

 Leslie Gulch ACEC
 Mahogany Mountain RNA

U.S. Department of the Interior
Bureau of Land Management
Vale District

Upper Leslie Gulch
OR-3-74

AREA OF CRITICAL
ENVIRONMENTAL CONCERN &
RESEARCH NATURAL AREA

MAP 3
Upper Leslie Gulch WSA, OR-3-74. Steep terrain of the WSA, seen from a ridgeline that forms the eastern boundary. February 1981.

Upper Leslie Gulch WSA, OR-3-74. Western portion of WSA looking northeast from Dago Gulch road. September 1986.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Slocum Creek Wilderness Study Area (OR-3-75)

1. Introduction

General Description of Study Area

The Slocum Creek Wilderness Study Area (WSA) is located east of the Owyhee Reservoir in Malheur County, approximately 47 miles south of Vale (see Map 1). The nearest highway is U.S. Highway 95, approximately 30 miles to the southeast.

The WSA is pear-shaped, approximately 5.5 miles long and 3 miles wide, and contains 7,600 acres. All surface and mineral estate within the WSA is publicly owned (see Map 2). The boundary consists of the high standard, gravel Leslie Gulch road on the north; private land and maintained, dirt roads on the east, south and west; and Bureau of Reclamation-administered land on the northwest.

The WSA contains rugged topography formed by intermittent streams cutting through thick, volcanic deposits. The resulting land pattern is composed of steep-sided drainages separated by high, north-south oriented ridges. Over 85 percent of the WSA has gradients exceeding 25 percent.

Natural vegetation consists mostly of sagebrush and bunchgrass. Western junipers are scattered throughout the area. A small, relict stand of ponderosa pine is located along the crest of Blue Point Ridge near Dago Gulch.

Interrelationships

The Slocum Creek WSA is adjacent to the Upper Leslie Gulch WSA (OR-3-74) on the east, and the Honeycombs WSA (OR-3-77A) on the north. The three WSAs are separated by two roads. The Leslie Gulch road, between Slocum Creek and Honeycombs WSAs, is an all-weather road leading to boat launching facilities at the Owyhee Reservoir. The Dago Gulch road, between Slocum Creek and Upper Leslie Gulch WSAs, is a private road within a right-of-way that authorizes maintenance of the road and access to a private ranch.

Adjacent to the WSA on the northwest is land managed by the Bureau of Reclamation in conjunction with its administration of the Owyhee Reservoir. In other locations along the reservoir, portions of this land have been leased for recreational cabin sites. Due to the steep terrain adjacent to the WSA, the likelihood of development in this area is remote but possible.

Approximately 2,130 acres in the northern portion of the WSA are included in the Leslie Gulch Area of Critical Environmental Concern (ACEC). See Map 3 for the ACEC boundaries.

The ACEC was designated to protect endemic plants that are Federal candidate species for listing under the Endangered Species Act. Special management for the ACEC includes:

- continuation of grazing, managed to enhance or maintain existing vegetation,
- no new range projects, unless needed to protect ACEC values, and
- vehicles restricted to existing roads and ways.

These restrictions would continue to apply in the portion of the WSA within the ACEC whether or not the area is designated wilderness.

Most of the WSA is in the Three Fingers Wild Horse Herd Management Area (HMA). HMA management would not be significantly affected by either of the alternatives so is not discussed further.
The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports approximately 75 California bighorn sheep (a Federal candidate species for listing under the Endangered Species Act) and about 100 mule deer and 5 Rocky Mountain elk during the winter. ODFW manages the Owyhee herd to produce 15 bucks per 100 does of mule deer and 15 bulls per 100 cows of elk. Bighorn sheep are managed to produce trophy-quality animals, thus hunter harvest is strictly controlled. Nongame species present include the northern bald eagle, which is Federally listed as a threatened species in Oregon. The ODFW management goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels.

The proposed action for this WSA conforms with ODFW management goals for game and nongame species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on potential and existing land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on nearby private land (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on energy and mineral exploration and development,
- impact on special interest plants,
- impact on bighorn sheep, mule deer, Rocky Mountain elk, northern bald eagles and other wildlife species,
- impact on livestock grazing and management, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

The section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably-foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness (proposed action)
- no wilderness/no action

An enhanced alternative is not analyzed because there is no opportunity to substantially enhance wilderness values. A partial alternative is not analyzed because there is no opportunity to avoid conflicts from other resource uses by recommending only a portion of the WSA suitable as wilderness.

Public comments received while the EIS was being scoped suggested that this WSA be combined with the Upper Leslie Gulch, Honeycombs, Wild Horse Basin (OR-3-77B), Dry Creek Buttes (OR-3-56) and Dry Creek (OR-3-53) WSAs to form a single wilderness area. This is not analyzed because the Dry Creek and Dry Creek Butte WSAs are separated from the others by the Owyhee Reservoir. The Owyhee Reservoir and adjacent lands managed by the Bureau of Reclamation are not subject to wilderness review. Also, the Slocum Creek WSA is separated from the adjacent Honeycombs and Upper Leslie Gulch WSAs by roads which do not qualify for closure. The Leslie Gulch road on the north is an all-weather road which receives substantial use. The Dago Gulch road on the east is a private road within a right-of-way and provides access to a private ranch. Although this road cannot be closed, public use could be restricted
by moving a locked gate currently located 1 mile south of the Leslie Gulch road to a new location at the Leslie Gulch junction. It would also be possible to manage these six WSA’s as separate units within a wilderness complex.

All Wilderness (Proposed Action)

Under the all wilderness alternative, 7,600 acres of public land would be recommended suitable as wilderness (see Map 2).

Portions of the northern boundary road in Leslie Gulch have historically been subject to damage by frequent flashfloods, resulting in occasional rerouting of segments of the road. To provide for adequate protection and maintenance of the road, from the junction with the Dago Gulch road to the Owyhee Reservoir, the designated wilderness boundary would be either the standard setback distance from the Leslie Gulch road, at a minimum, or the alluvial valley floor of Leslie Gulch (not to exceed 400 feet from the road), whichever is greater in width. Where Slocum Creek Canyon meets the Leslie Gulch road, the setback distance from the road would need to be 1,200 feet, for the width of Slocum Creek’s alluvial valley floor (an average width of 300 feet), in order to control flashfloods in this drainage that could washout the Leslie Gulch road.

Energy and Mineral Development Actions

Wilderness designation would close 7,600 acres within the WSA to mineral entry. Exploration for energy resources, including oil and gas, would be prohibited on 7,600 acres. Exploration for mineral resources, including gold, tin, bentonite, zeolites, perlite and pumice, would be prohibited on 7,600 acres. No energy or mineral development activities have been projected.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Slocum Creek WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 356 AUMs within the portion of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for livestock management on 2 miles of way would be precluded. Management of livestock and inspection of 2 miles of fences would be conducted mainly on horseback.

Recreation Management Actions

The entire 7,600 acres would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 2 miles of existing way. Current recreational use is estimated to be 1,500 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

The entire 7,600-acre WSA would be open to mineral entry. Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum formations and mineral deposits, a thick volcanic cover, and a lack of existing mineral leases and mining claims, only casual non-surface-disturbing exploration (without development) is postulated for oil and gas, gold, tin, bentonite, zeolites, perlite and pumice.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is man-
aged to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Slocum Creek WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 356 AUMs within the portion of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for livestock management on 2 miles of way would continue. Two springs would be developed. Management of livestock and inspection of 2 miles of fence and the two projected springs would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the two springs.

Recreation Management Actions

Vehicle use would continue to be restricted by vehicle designation to the existing 2 miles of way. Current recreational use is estimated to be 1,500 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural because the rugged terrain has limited the number of unnatural features. Four interior, unnatural features influence approximately five percent of the WSA. These features consist of a 2-mile way and 2-mile fence, both running roughly parallel in the extreme southern end of the WSA, an 8-foot-long fence and a wildlife guzzler.

Unnatural features outside the WSA that affect the naturalness of the area include the two boundary roads. The Leslie Gulch road, north of the WSA, is well-maintained and is used by approximately 3,000 vehicles annually. The road east and south of the WSA is improved but lightly traveled.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The WSA offers outstanding opportunities for solitude and primitive and unconfined recreation. The major factor contributing to opportunities for solitude is the topographic screening provided by the steep and diverse terrain. All of the drainages offer excellent topographic screening because they are winding and steep-sided.

Several broad, rounded ridges extend into the WSA from the south. False summits screen visitors on the ridgetops from visitors in the drainages below. However, people on the ridgetops are visible to others on the same ridge or on most of the WSA's other ridges.

Outside sights and sounds affecting solitude include vehicle use on the boundary roads, and use of a semi-developed camping area in Leslie Gulch.

Day hiking opportunities are outstanding because of the geologic formations, outstanding scenery, the possibility of observing bighorn sheep, and easy vehicle access on the Leslie Gulch road. However, hiking access into the WSA along the northern boundary is limited by very steep slopes to Slocum Creek. Backpacking opportunities are available but are not outstanding because of the WSA's small size.

Hunting opportunities are excellent for mule deer and chukar. A limited number of permits are also issued each year for bighorn sheep.

Special Features

The Slocum Creek WSA contains spectacular geologic formations created by the weathering of Leslie Gulch ash-flow tuff. The tuff is exposed throughout the WSA, and may be as much as 2,000 feet thick. Its great thickness, uniformity, and relative resistance
to weathering gave rise to the impressive cliffs, outcrops and spires that characterize this WSA. Leslie Gulch tuff is also exposed in the Honeycombs, Upper Leslie Gulch, Blue Canyon and Dry Creek Buttes WSAs.

Scenery in the WSA is outstanding because of the geologic formations. The abundant and varied geologic features contribute color, diversity and stark beauty to the desert landscape.

A relict stand of ponderosa pine is located along the crest of Blue Point Ridge in the Dago Gulch portion of the study area. Refer to Map 2 for the location of this stand. When it was last counted in 1973, the population consisted of four mature trees around 400 years old and 45 young trees and seedlings. This is the only known relict stand of ponderosa pine in the Owyhee uplift and is of scientific importance because it may be evidence of a past moist climate.

Four plant species of special interest are found in the WSA. (These plants are further discussed in the Vegetation section.)

The rugged breaks and outcrops of this WSA form part of the Owyhee River bighorn sheep range. The WSA supports approximately 75 bighorn sheep, a Federal candidate for listing under the Endangered Species Act.

Northern bald eagles, Federally listed as a threatened species in Oregon, winter in the Owyhee River area. (These birds are further discussed in the Wildlife section.)

A small disjunct population of Rocky Mountain elk resides yearlong south of the WSA on Mahogany Mountain. A few elk use the WSA during the winter.

### Diversity of the National Wilderness Preservation System

Based on the Bailey-Kchcler method of classifying ecosystems, the study area is in the Intermountain Sagebrush Province and has the potential vegetation of a sagebrush steppe. The WSA contains the big sagebrush/bluebunch wheatgrass plant community listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan.

Boise, Idaho is the one standard metropolitan statistical area with a population over 100,000 within five hours' driving time of the WSA.

### Energy and Mineral Development

The energy and mineral resources were evaluated from available geologic data supplemented by limited geochemical stream sediment sampling by Oregon Department of Geology and Mineral Industries (DOGAMI) under BLM contract. This geochemical survey became the primary basis for the metallic minerals classification in the WSA. The DOGAMI report is entitled "Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon." Using the DOGAMI report, the study area was reevaluated by BLM personnel.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (level of certainty). A description of the rating system is provided in the Statewide EIS volume.

The mineral potential classifications for the WSA are shown in Table 3.

Surface geologic material found in the WSA consists essentially of a thick sequence of Late Tertiary (Miocene) ash flow tuff and intercalated fluvialite and lacustrine volcanoclastic and clastic sedimentary rocks deposited in a broad, north-plunging basin. No pre-Tertiary rocks are known to be exposed in the area and it is not known what underlies the Cenozoic cover, since there has been no deep drilling in the area that has penetrated the Tertiary rocks. However, as this area lies within the margins of late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic sediments may occur at depth.

### Energy Resources

Based upon indirect evidence (e.g. inferred presence of pre-Tertiary marine sediments at depth and the fact that it is situated within a sedimentary basin), the entire WSA is considered to have a moderate potential for the occurrence of oil and gas.

As of October 16, 1987, there were no oil/gas or other mineral leases in the WSA.

### Mineral Resources

No confirmed mineral deposits are located in the WSA. Based on indirect evidence, the entire WSA is considered to have a moderate potential for the
occurrence of gold, tin, bentonite, zeolites, perlite and pumice. This rating is based on the inferred presence of these minerals, anomalous values in stream sediment samples, and favorable rock types. Tin is a strategic and critical mineral, but no deposits have been found in the WSA.

As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Vegetation throughout the area is characteristic of a sagebrush steppe ecosystem, interspersed with pockets of juniper and curlleaf mountain mahogany. A small population (approximately 50 trees scattered over 10 acres) of ponderosa pine, unique in this vicinity and described in the Special Features section, occurs in the WSA. Salt desert shrub mosaics occur along the Owyhee Reservoir and include shrubs such as greasewood, spiny hopsage and shadscale. Bitterbrush is also found in portions of the area. Herbaceous perennials found throughout the WSA include arrowleaf balsamroot, phlox, penstemon, daisy fleabane and milkvetch. Where the topography of the WSA is relatively flat, particularly near the Owyhee Reservoir and in Slocum Creek and Schoolhouse Gulch, vegetation is in early seral stage. Most of the area is in mid-seral stage, with pockets inaccessible to livestock in late seral stage and at the potential natural community.

Four plant species of special interest are found in the WSA. All are Federal candidate species for listing under the Endangered Species Act: Astragalus sterilis (sterile milkvetch), Mentzelia packardiae (Packard’s blazing star), Senecio erterae (Etter’s groundsels), and Mentzelia owyheense (Owyhee clover). The groundsels and the blazing star are annual species specific to Leslie Gulch ash deposits. Globally, they are found only in this WSA and on the two adjacent WSAs to the north and east.

Wildlife

Approximately 200 California bighorn sheep occupy suitable habitat east of Owyhee Reservoir. The Slocum Creek WSA accounts for about 75 head in the herd. The present population has been built up from a transplant of 17 animals from British Columbia in 1965. California bighorns are native to eastern Oregon. Due to the size of the herd and good vehicle access on the Leslie Gulch road, ODFW plans to use bighorn sheep in the area as transplant stock for releases elsewhere in the state.

The WSA supports a winter mule deer herd of about 100 animals. Summer use is very light and is estimated at 20 head. A small number of Rocky Mountain elk also winter in the WSA.

Northern bald eagles are winter residents and spring and fall migrants to Owyhee Reservoir. They are currently Federally listed as a threatened species in Oregon. A total of 20 to 30 eagles normally use Owyhee Reservoir and adjacent areas as long as open water is available for ducks and geese, their primary winter food source.

One wildlife guzzler is located within this WSA.

Watershed

There are no perennial streams in the WSA.

Livestock Grazing

The WSA is located entirely within the Three Fingers grazing allotment. All public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the Naturalness section) include 2 miles of fence.

Livestock operators use motor vehicles on the 2-mile-long way approximately five to ten times per year to inspect and maintain the fence, check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to most parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

Recreation in the WSA includes hiking, general sightseeing, photography and wildlife observation. Hunting opportunities are excellent because mule deer and chukars are plentiful, and a few hunting permits for bighorn sheep are issued each year. Most recreational activities originate from the Leslie Gulch road.

Recreational use of the WSA is increasing along with the increased use of the Owyhee Reservoir. The excellent fishing and boating on the reservoir bring many people into the area, some of whom take advantage of the WSA’s primitive recreation opportunities.
Overall recreation use in the WSA amounts to approximately 1,500 visitor days per year.

Local Personal Income

Livestock use at the current level of 356 AUMs and recreation use totaling 1,500 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $4,272 for livestock grazing and $18,000 related to recreation use of the WSA, for an overall total of $22,272. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness (Proposed Action)

Recommended suitable for wilderness: 7,600 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All 7,600 acres of the WSA would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features including geologic formations, outstanding scenery, special interest plants, a relict stand of ponderosa pine, bighorn sheep, northern bald eagles and Rocky Mountain elk would also be protected.

Naturalness

The naturalness of the WSA’s rugged terrain (95 percent is not influenced by internal, unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of a 2-mile-long way, which influences approximately 140 acres (less than two percent of the WSA), would allow the way to revegetate. Within three to five growing seasons, revegetation would make the way substantially unnoticeable.

Solitude

Opportunities for solitude provided by the WSA’s rugged topography of winding drainages and high, steep-sided ridges would be further improved through the elimination of motorized vehicle use on the 2-mile-long way. The ridgetops in the southern portion of the WSA would benefit most from closure of the way. However, since the way is rarely used, its closure would provide only minor benefits.

Primitive and Unconfined Recreation

Closure of the 2-mile-long way in the southern portion of the WSA would slightly increase the quality of hiking and sightseeing in this area by providing a more natural, wild setting.

Special Features

Eliminating motorized vehicle use on the 2-mile-long way would prevent minor vehicle disturbances of bighorn sheep, and would improve scenic values once the way revegetates.

Conclusion: Wilderness designation of 7,600 acres would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 7,600 acres within the WSA to mineral entry.

Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 7,600 acres. No energy development activities are projected because there is insufficient geologic evidence to justify an exploration and development program.

Conclusion: No impact on energy development is expected.
Mineral Development

Exploration for mineral resources, including gold, tin, bentonite, zeolites, perlite and pumice, would be precluded on 7,600 acres. No mineral development activities are projected because there is insufficient geologic evidence to justify an exploration and development program.

Conclusion: No impact on mineral development is expected.

Impacts on Vegetation

Two miles of way, once closed to vehicles, would revegetate within three to five years.

Recreational use is projected to increase in this WSA from 1,500 to 2,300 visitor days. Foot trails which may become established by this increased use would have a potential impact on the two special interest plant species (Errter's groundsel and Packard's blazing star) which have specifically evolved on Leslie Gulch tuffaceous ash deposits. Both species grow on terrain flat enough to support foot trails that would pass through the ash deposits where the plants grow. High levels of visitor use may reduce the survival of localized populations of these two annual species. However, monitoring and mitigation measures would avoid or minimize impacts to these plants.

Little or no change is anticipated to vegetation over the rest of the WSA.

Conclusion: Two special interest plant species would be potentially threatened by increased visitor use. Two miles of way would revegetate. Little or no change would occur to vegetation over the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 75 California bighorn sheep, 100 mule deer, 5 Rocky Mountain elk, northern bald eagles and nongame species would be maintained or slightly enhanced under wilderness designation. Wildlife would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM Wilderness Management Policy. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans.

Closure of 2 miles of ways would eliminate minor vehicle disturbances of bighorn sheep.

Conclusion: Wildlife habitat and populations would be maintained or enhanced throughout the WSA.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 356 AUMs within the portion of the allotment in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 2 miles of way would be precluded under wilderness designation. This would result in some inconvenience and a slight additional expense to livestock operators. However, since most of the area is presently inaccessible to vehicles, much of the livestock management is already accomplished by horseback.

Development of two springs would be precluded, resulting in the foregone opportunity to improve livestock distribution.

Conclusion: Existing livestock use would remain at approximately 356 AUMs. Two miles of way would be closed, causing some inconvenience and a slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.

Impacts on Recreation Use

Closing the 2-mile-long way in the southern portion of the WSA would have little impact on recreation use because the way is rarely used by recreationalists. A locked gate on Dago Gulch Road prevents visitor access to this way and it is used primarily by livestock operators.

Overall recreation use would increase as public awareness grows of existing wilderness qualities within the WSA. In addition, increasing recreational use of the Owyhee Reservoir would bring more people into this area, some of whom would visit the WSA, contributing to higher recreation use levels. Overall recreational use is projected to increase from the current level of approximately 1,500 visitor days per year to approximately 2,300 visitor days per year.

Conclusion: Overall recreation use would increase from approximately 1,500 visitor days per year to approximately 2,300 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 356 AUMs and overall recreation use would increase by 800 visitor days per year.
Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $9,600 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $10,000.

**No Wilderness/No Action**

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 7,600 acres

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 7,600 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features (including geologic formations, outstanding scenery, special interest plants, a relict stand of ponderosa pine, bighorn sheep, northern bald eagles and Rocky Mountain elk) would be subject to the effects of the projected management actions. Projected actions include the development of two springs, continued vehicle use of the 2-mile-long way for recreation and livestock management, vehicles limited by vehicle designation to the existing way, and continued application of restrictions associated with the Leslie Gulch ACEC designation.

**Naturalness**

Continued vehicle use on the 2-mile-long way would maintain the impact of vehicle tracks upon the naturalness of approximately 140 acres (less than two percent of the WSA) in the southern portion of the WSA. The continuance of the limited vehicle designation would prevent an increase of ORV use.

Development of two springs would cause approximately one acre of surface disturbance and would influence naturalness on approximately 50 acres.

**Solitude**

Continued vehicle use on the 2-mile-long way would continue to cause minor, short-term impairment of opportunities for solitude in areas adjacent to the way. Since a locked gate prevents visitor access to this way and there is little vehicle use, the impact on solitude would be slight.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to the existing way. The infrequent vehicle usage of this way would continue to intrude upon primitive, non-motorized recreation in the southern portion of the WSA.

Development of two springs (one in the upper end of Siocum Creek and one in the upper end of Schoolhouse Gulch) would harm primitive recreation opportunities by placing unnatural features in pristine areas, but would also benefit activities such as hiking and camping by providing reliable year-round water in areas where none currently exists.

**Special Features**

Continued, but infrequent, vehicle use of the 2-mile-long way would maintain the minor disturbance of bighorn sheep and the minor impairment of scenic values caused by vehicle tracks.

Development of two springs would slightly benefit bighorn sheep habitat, but would slightly impair scenic values in the vicinity of the springs by adding unnatural features to pristine settings.

The Leslie Gulch ACEC would continue to provide some protection to special features in the WSA's most sensitive areas.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 50 acres of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

The entire 7,600 acre WSA would be open to mineral entry.

**Energy Development**

Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (without development) is projected for oil and gas.

**Conclusion:** There would be no impact on energy development.
Mineral Development

Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (without development) is projected for gold, tin, bentonite, zeolites, perlite, and pumice.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

Development of two springs would remove vegetation on approximately one acre, increase grazing of key forage species in the vicinity of the springs and reduce livestock grazing pressure on vegetation elsewhere in the WSA.

As under the all wilderness alternative, increased recreation use of the WSA may reduce the survival of localized populations of two special interest plant species. However, monitoring and mitigation measures would avoid or minimize impacts to these plants.

The Leslie Gulch ACEC designation would continue to protect special interest plants.

Conclusion: Two special interest plant species would be potentially threatened by increased visitor use. Vegetation would be removed on one acre by spring development. Little or no change would occur over the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 75 California bighorn sheep, 100 mule deer, 5 Rocky Mountain elk, northern bald eagles and nongame species would be maintained or slightly enhanced under this alternative. Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate wildlife forage and cover would continue to be provided in the prepara- tion of livestock allotment management plans.

Development of two springs for livestock would slightly enhance bighorn sheep habitat. However, water distribution within the general area of the WSA is adequate for sheep at the present time.

The Leslie Gulch ACEC designation would continue to provide management guidance that would protect bighorn sheep habitat and prevent adverse impacts to their well-being.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSA and slightly enhanced in the vicinity of the two projected springs.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 356 AUMs within the portion of the allotment in the WSA.

Two springs would be developed to improve livestock distribution.

Vehicle use for livestock management and inspection/maintenance of 2 miles of fence and two projected spring developments would occur on 2 miles of way.

Conclusion: Existing livestock use would remain at approximately 356 AUMs. Development of two springs would improve livestock distribution.

Impacts on Recreation Use

Continued vehicle use of the 2-mile-long way would have little impact on recreation use levels because the way is rarely used by motorized recreationists. Development of two springs would encourage more hiking use of Slocum Creek and Schoolhouse Gulch by providing reliable water sources in areas where none currently exist.

Overall recreation use would increase from the current level of approximately 1,500 visitor days per year to approximately 2,300 visitor days per year because of the spring developments, and because increasing recreational use of the Owyhee Reservoir would bring more people into this area, some of whom would visit the WSA.

Conclusion: Overall recreation use would increase from approximately 1,500 visitor days per year to approximately 2,300 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 356 AUMs and overall recreation use would increase by 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $9,600 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $10,000.
Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (All Wilderness), options for future energy and mineral exploration would be foregone. Vehicle use would be precluded, eliminating motorized recreation opportunities and causing some inconvenience and a slight additional expense for livestock operators. Development of two springs would be precluded, resulting in the foregone opportunity to improve livestock distribution.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue, with some minor, added inconvenience and expense to livestock operators resulting from exclusion of vehicles for day-to-day management/inspection activities. The long-term productivity of wilderness values would be preserved.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The WSA is capable of being managed to preserve its wilderness characteristics. Private land at the southeast boundary would prevent public access to the upper end of the Slocum Creek drainage, the principal recreational travel route in the WSA, but access would be available at the drainage's lower end.

Rationale for Selection of the Proposed Action

The all wilderness alternative is the proposed action because it would preserve the area's high wilderness values — including geologic formations, special interest plants, bighorn sheep, northern bald eagles, Rocky Mountain elk, a relict stand of ponderosa pine, outstanding scenery and outstanding opportunities for solitude and primitive recreation. Options for energy and mineral exploration, continued vehicle use on a 2-mile-long way, and spring development would be foregone. Due to a lack of sufficient geologic evidence, there has been no energy and mineral exploration or development projected for this WSA. Closure of the way would cause only minor inconvenience because it is infrequently used.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: A combination of areas would protect natural resources. Close the roads between WSA. Combine 3-75 with 3-74; combine 3-75 with 3-77A; combine 3-75, 3-74 and 3-77A. Response: It is not feasible to close the roads and combine these WSA because the roads provide access to public and private facilities. See Section 2, Description of Alternatives, for a more detailed discussion of alternatives considered but not analyzed.

Comment: Include Schoolhouse Gulch in the ACEC if this WSA is not designated wilderness. Response: This EIS is intended to assist in amending existing plans to add consideration of the wilderness issue in those plans. To consider new special designations such as ACECs would involve reopening the entire
land use planning process, which is not germane to the wilderness issue. Consideration of a new ACEC will occur in upcoming resource management plans.

**Comment:** Acquire Schoolhouse Gulch. **Response:** Schoolhouse Gulch is already public land and is recommended for wilderness designation under the proposed action.

**Comment:** Close Dago Gulch road. Allow access to private land owner. **Response:** Vehicle use of this road could be closed to all but the private land owner. The effect of such an action would be essentially the same as a road closure. However, it is outside the scope of this EIS to recommend restrictions on the use of this road.

### Table 1. Summary of Proposed Management Under Each Alternative, Slocum Creek WSA (OR-3-75)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>7,600</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>7,600</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>7,600</td>
<td>0</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Springs (number)</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

¹Except for 2 miles of way in the WSA, the acreage shown is already closed to cross-country vehicle use through a “limited” ORV designation.
### Table 2. Summary of Environmental Consequences of Alternatives, Slocum Creek WSA (OR-3-75)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 7,600 acres would protect and enhance existing wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 50 acres of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy or mineral development is expected.</td>
<td>There would be no impact on energy or mineral development.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Two special interest plant species would be potentially threatened by increased visitor use. Two miles of way would revegetate. Little or no change would occur to vegetation over the rest of the WSA.</td>
<td>Two special interest plant species would be potentially threatened by increased visitor use. Vegetation would be removed on 1 acre by spring development. Little or no change would occur to vegetation over the rest of the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained or enhanced throughout the WSA.</td>
<td>Wildlife habitat and populations would be maintained or enhanced throughout the WSA.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use would remain at approximately 356 AUMs. The 2-mile way would be closed, causing some inconvenience and a slight increase in cost to livestock operators. Better livestock distribution would be foregone from precluded projects.</td>
<td>Existing livestock use would remain at approximately 356 AUMs. Development of two springs would improve livestock distribution.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Overall recreation use would increase from approximately 1,500 visitor days per year to approximately 2,300 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 1,500 visitor days per year to approximately 2,300 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $10,000.</td>
<td>Annual local personal income would increase by approximately $10,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Slocum Creek WSA (OR-3-75)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (gold, tin)</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Perlite, Pumice</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accommodations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Slocum Creek WSA (OR-3-75)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three Fingers (No. 0503)</td>
<td>14,634</td>
<td>3/01-5/01</td>
<td>2</td>
<td>356</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Slocum Creek WSA (OR-3-75) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td></td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+800</td>
<td>+800</td>
<td></td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+9,600</td>
<td>+9,600</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+9,600</td>
<td>+9,600</td>
<td></td>
</tr>
</tbody>
</table>
N
T26
S
T27
S
R44E
R45E

LEGEND

BLM Land in WSA Studied Under Section 603 of FLPMA
Wilderness Study Area Boundary
Boundary of Adjacent Wilderness Study Areas
Bureau of Land Management
State
Private
Relict Stand of Ponderosa Pine

U.S. Department of the Interior
Bureau of Land Management

Slocum Creek WSA
OR-3-75

LAND OWNERSHIP

MAP 2
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Slocum Creek WSA, OR-3-75. Eastern portion of WSA looking north down Dago Gulch (the WSA is on the left side of the photo). Within the area recommended suitable under the proposed action (all wilderness) alternative. September 1983.

Slocum Creek WSA, OR-3-75. Eastern portion of WSA looking south at a ridge containing ponderosa pine. Within the area recommended suitable under the proposed action (all wilderness) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Honeycombs Wilderness Study Area (OR-3-77A)

1. Introduction

General Description of Study Area

The Honeycombs Wilderness Study Area (WSA) is located east of the Owyhee Reservoir in Malheur County, approximately 31 miles south of Vale (see Map 1). The nearest major highway is Oregon State Highway 201 approximately 15 miles northeast.

The area has an oblong configuration. It is 16 miles long, approximately 4 miles wide, and contains 39,000 acres of public land (see Map 2). All of the surface and mineral estate located in the WSA is publicly owned.

The boundary consists of high standard dirt BLM roads on the south, east and north. The west border abuts public land administered by the Bureau of Reclamation and the State of Oregon. A 40-acre plot of private land is located in the Mud Springs area along the WSA's southern border.

Three dead-end roads enter the WSA, forming part of the boundary. A 1.75-mile-long road to a horse trap in the Sheephead Basin area enters the WSA from the north. A 3-mile-long road enters the area at Craig Gulch and terminates at Three Fingers Gulch. A 2.5-mile-long branch of this road, crosses Shadscale Flat, and ends at Shadscale Spring. The third road, 0.75 mile long, enters the WSA 1 mile north of Craig Gulch and ends at a mining claim.

Topography in the WSA is rugged. A thick deposit of volcanic tuff is cut by numerous intermittent streams, resulting in a broken surface of ridges, hills and drainages, with frequent outcroppings and pinnacles. Several areas of relatively-level land are found in Shadscale Flat and Sheephead Basin.

In the northern portion of the WSA is an area of approximately 12,000 acres called the Honeycombs. The Honeycombs is a very scenic area of steep-walled canyons with sculpted, multi-colored rock formations of volcanic origin.

Sagebrush and grasses are the predominant plants in the WSA. Junipers are scattered on a few slopes and in several of the drainages.

Interrelationships

The Honeycombs WSA is adjacent to the Wild Horse Basin WSA (OR-3-77B) on the north, and the Slocum Creek (OR-3-75) and Upper Leslie Gulch (OR-3-74) WSAs on the south. The WSAs are separated by roads.

Land administered by the Bureau of Reclamation in connection with its management of the Owyhee Reservoir lies between the west side of the WSA and the reservoir. Numerous recreational cabins, most of them accessible only by boat, are located on leased sites on this adjacent land. These cabins are located on both sides of the Owyhee Reservoir and are generally within 0.5 mile of the WSA boundary.

Also adjoining the west side of the WSA, for 1 mile, is State of Oregon land.

The Honeycombs Area of Critical Environmental Concern (ACEC) and Research Natural Area (RNA) are entirely within the WSA, and a portion of the Leslie Gulch ACEC is located in the study area (see Map 3). The Honeycombs ACEC and RNA have an identical boundary and contain 11,930 acres. Approximately 3,870 acres of the Leslie Gulch ACEC are located in the southern end of the WSA. The ACECs and RNA were designated to protect bighorn sheep, geologic formations, and the fragile soils and endemic plants of these sites.
The Honeycombs ACEC and RNA include the following special management restrictions:

- continuation of grazing, managed to enhance or maintain existing vegetation, and
- no new range improvements allowed unless needed to protect ACEC or RNA values.

In addition to these restrictions for the ACEC/RNA, BLM has designated the Honeycombs area as an off-road vehicle (ORV) closure. The boundary of the closure is the same as the ACEC/RNA.

The Leslie Gulch ACEC includes the following special management restrictions:

- continuation of grazing, managed to enhance or maintain existing vegetation,
- no new range improvements allowed unless needed to protect ACEC values, and
- ORVs restricted to existing routes.

In addition to these restrictions, and unrelated to the ACEC or RNA management restrictions, there is a no-surface occupancy restriction for mineral leases within sight of the Owyhee Reservoir.

All restrictions currently in effect within the WSA would continue to apply whether or not the area is designated wilderness.

Most of the WSA is in the Three Fingers Wild Horse Herd Management Area (HMA). Management objectives call for maintaining between 75 and 150 wild horses in the HMA. On the average of once every four years the excess portion of the herd would be gathered by riders on horseback and helicopter. A trap site is located at the end of the northern dead-end road. Since management of wild horses would continue under each alternative with little or no difference, it is not discussed further.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports roughly 200 mule deer, 100 California bighorn sheep and 20 pronghorn antelope on a yearlong basis. Winter use by mule deer totals at least 850 head. ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Bighorn sheep are managed as a trophy herd, so hunter harvest is strictly controlled and limited to mature adult rams. Northern bald eagles (Federally listed as a threatened species in Oregon) are present as winter residents and spring and fall migrants. There are a variety of reptiles in the WSA including whiptails, collared lizards and leopard lizards. The ODFW goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on energy and mineral exploration and development,
- impact on interior dead-end roads and their possible closure,
- impact on special interest plant species,
- impact on mule deer, bighorn sheep, antelope, northern bald eagles, reptiles and other wildlife species,
- impact on livestock grazing and management,
- impact on recreation use levels, and
- impact on potential for designation of a National Park in this area (analysis of the feasibility of designating a National Park is outside the scope of this document, so is not discussed further).

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably-foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local
laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- partial wilderness (proposed action)
- no wilderness/no action

An enhanced wilderness alternative, which would combine this WSA with the Wild Horse Basin, Slocum Creek and Upper Leslie Gulch WSAs, is not analyzed because the roads separating the WSAs provide essential access to the Owyhee Reservoir for recreationists as well as owners and users of resort cabins. An enhanced wilderness alternative which would close the dead-end roads in the WSA is not analyzed because road closure is addressed in the partial wilderness alternative.

Public comments received while the EIS was being scoped suggested that this WSA be combined with the Wild Horse Basin, Slocum Creek, Upper Leslie Gulch, Dry Creek (OR-3-53), and Dry Creek Buttes (OR-3-56) WSAs into a single wilderness area. This is not analyzed because the Dry Creek and Dry Creek Buttes WSAs are separated from the Honeycombs WSA by the Owyhee Reservoir. The reservoir and adjacent lands are managed by the Bureau of Reclamation and are not subject to wilderness review. However, these WSAs could be managed as separate units within a wilderness complex.

**All Wilderness**

Under the all wilderness alternative, 39,000 acres would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the three dead-end roads in the WSA would remain open to motor vehicles.

 Portions of the southern boundary road in Leslie Gulch have historically been subject to damage by frequent flashfloods, resulting in occasional rerouting of segments of the road. To provide for adequate protection and maintenance of the road between Dago Gulch Road and the reservoir, the designated wilderness boundary would be either the standard setback distance from the Leslie Gulch Road, at a minimum, or the alluvial valley floor of Leslie Gulch (not to exceed 400 feet from the road), whichever is greater in width.

**Energy and Mineral Development Actions**

Wilderness designation would close 39,000 acres within the WSA to mineral entry.

Exploration for energy resources, including oil and gas, would be prohibited on 39,000 acres. No development for energy resources has been projected.

Exploration for mineral resources, including gemstones (picture jasper), gold, silver, perlite and bentonite, would be prohibited on 39,000 acres. Continued development of picture jasper is postulated to occur on five mining claims in the northeastern and southeastern portions of the WSA. This effort would likely involve three jasper operations and would consist of blasting, sizing and removal of the jasper. The resulting surface disturbance would be approximately 14.5 acres (of which 14 acres would be new disturbance), including 5.5 miles of new road construction.

**Wildlife Habitat Management Actions**

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Honeycombs WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

**Livestock Management Actions**

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portions of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for
livestock management on 8 miles of ways would be precluded. Management of livestock and inspection of 5 miles of fences, 1 mile of pipeline, 3 springs and 2 reservoirs would be conducted from 8 miles of existing road or on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the springs, reservoirs and pipeline.

Recreation Management Actions

The entire 39,000 acres (excluding three dead-end roads) would be closed to motorized vehicle use. Presently, vehicle use is excluded from the 11,930-acre Honeycombs ORV closure and is limited by vehicle designation to 8 miles of existing roads and 8 miles of existing ways in the rest of the WSA.

Current recreational use is estimated to be 2,000 visitor days per year.

Partial Wilderness (Proposed Action)

Under the partial wilderness alternative, 36,600 acres of public land would be recommended suitable as wilderness (see Map 4). Craig Gulch along the eastern boundary, where mineral activity has resulted in surface disturbance, would be recommended as nonsuitable for wilderness designation. An area containing a concentration of existing range projects around Sheephead Ridge in the northeast corner of the WSA would also be recommended as nonsuitable. Total area recommended nonsuitable under this alternative would be about 2,400 acres.

The road in Shadscale Flat and its two branches would be closed. The dead-end road leading to the horsetrap in the northeastern portion of the WSA, and the dead-end road leading to a mining claim north of Craig Gulch would remain open.

Portions of the southern boundary road in Leslie Gulch have historically been subject to damage by frequent flashfloods, resulting in occasional rerouting of segments of the road. To provide for adequate protection and maintenance of the road, between Dago Gulch Road and the reservoir, the designated wilderness boundary would be either the standard setback distance from the Leslie Gulch Road, at a minimum, or the alluvial valley floor of Leslie Gulch (not to exceed 400 feet from the road), whichever is greater in width.

In the Craig Gulch area, along the WSA's eastern side, the boundary between the suitable and nonsuitable portions would follow the old horsetrap road on Steamboat Ridge, a ridgeline west of Craig Gulch, and at the northern end of the new boundary, the 0.75 mile-long road to a mining claim. In the area near Sheephead Ridge, the boundary between the suitable and nonsuitable portions would follow a fence from the WSA's eastern boundary near the head of Carlton Canyon, along the west side of Sheephead Ridge, to the WSA's northern boundary. Approximately 0.5 mile of the dead-end road leading to the horsetrap in Sheephead Basin would extend into the WSA and form part of the boundary.

Energy and Mineral Development Actions

Wilderness designation would close 36,600 acres within the WSA to mineral entry. A total of 2,400 acres recommended as nonsuitable for wilderness would be open to mineral entry.

Exploration for energy resources, including oil and gas, would be prohibited on 36,600 acres. Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum formations and the relatively thick volcanic cover, only casual nonequipment exploration (with no development) is projected for oil and gas in the nonsuitable portions of the WSA.

Exploration for mineral resources would be prohibited on 36,600 acres, including gemstones (picture jasper), which have high potential for occurrence based on direct evidence; gold and silver, which have moderate potential for occurrence based on both direct and indirect evidence; perlite, which has moderate potential for occurrence based on direct evidence; and bentonite, which has moderate potential for occurrence, based on indirect evidence.

Continued development of picture jasper is postulated to occur on five mining claims in the northeastern and southeastern (suitable) portions of the WSA. This effort would likely involve three jasper operations and would consist of blasting, sizing and removal of the jasper. The resulting surface disturbance would be approximately 14.5 acres (of which 14 acres would be new disturbance), including 5.5 miles of new road construction.

Exploration for gold/silver is postulated to occur in the nonsuitable portions of the WSA. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may
involve up to three core holes (two in the northeast and one in the southeast) and may disturb one acre, including 0.5 mile of new road construction. The discovery of an economic deposit is not expected and no development is projected.

Exploration for perlite is postulated to occur in the nonsuitable portions of the WSA. This effort would most likely consist of surface examination and sampling, followed by the digging of one bulk sample pit/trench in the northeastern portion of the WSA. The resulting surface disturbance is postulated to be one acre, including 0.5 miles of new road construction. The discovery of an economically-mineable deposit is not expected and no development is projected.

Due to a lack of direct evidence indicating favorability and an absence of confirmed deposits, only casual non-surface-disturbing exploration (without development) is postulated for bentonite in the nonsuitable portions of the WSA.

Total surface disturbance resulting from projected energy and mineral exploration/development is estimated to be 14.5 acres (including three mine sites and 5.5 miles of new road construction) for mineral development, and 2 acres (including 1 mile of new road construction) for mineral exploration.

Wildlife Habitat Management Actions

Habitat would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. On the portion of the WSA recommended suitable as wilderness, habitat would also be managed in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Hexcombs WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portions of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for livestock management on 6 miles of ways and 5 miles of road would be precluded. Management of livestock and inspection of 0.1 mile of fence and a spring would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the spring.

In the portion of the WSA recommended nonsuitable as wilderness, vehicle use for livestock management would continue on 2 miles of ways and 3 miles of roads.

Recreation Management Actions

The entire 36,600 acres recommended suitable as wilderness (excluding 0.5 mile of road) would be closed to motorized vehicle use. Presently, vehicle use in this area is excluded from the 11,930 acre Honeycombs ORV closure, and is limited by vehicle designation to 5 miles of existing roads and 6 miles of existing ways in the rest of the suitable portion of the WSA. On the 2,400 acres recommended nonsuitable as wilderness, vehicle designation would continue to limit motorized vehicles to 3 miles of existing roads and 2 miles of existing ways.

Current recreational use is estimated to be 2,000 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 39,000-acre WSA would be open to mineral entry. Due to a lack of direct evidence indicating favorability, an absence of confirmed petroleum formations, a relatively thick volcanic cover and an absence of existing oil/gas leases, only casual non-surface-disturbing exploration (without development) is postulated for oil and gas.

Exploration/development efforts for gemstones (picture jasper), which have high potential for occurrence based on direct evidence, is projected to occur. Initially, this effort would consist of the continued development of three jasper mines contained on five lode mining claims in the northeastern (one claim) and southeastern (four claims) portions of the WSA. Development activity would likely consist of blasting,
sizing and removal of the jasper and result in approximately 14.5 acres of surface disturbance (of which 14 acres would be new), including 5.5 miles of new road construction. Exploration for new sources of jasper is postulated to occur throughout the area of high potential and would most likely consist of surface examination for jasper, followed by the development of one new operation, probably in the east-central portion of the WSA. The operation would be essentially the same as the existing operations and would involve six acres of surface disturbance, including 1.5 miles of new road construction. Total development of the picture jasper is postulated to include four surface mines, resulting in 20.5 acres of surface disturbance, including 7 miles of new road construction.

Exploration for gold/silver, which have moderate potential for occurrence based on both direct and indirect evidence, is projected to occur throughout the WSA. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to 30 holes, randomly drilled in the central portion of the WSA, and may disturb 15 acres, including 6 miles of new road construction. The discovery of an economic gold/silver deposit is projected, probably in the south-central portion of the WSA. The operation would involve approximately 100 acres of surface disturbance for an open-pit gold/silver mine and milling/leaching complex, including 2 miles of new/upgraded road construction.

Exploration for perlite, which has moderate potential for occurrence based on direct evidence, is postulated to occur throughout the WSA. This effort would most likely consist of surface examination and sampling followed by trenching/pitting and drilling. These tests may involve up to six bulk sample pits/trenches, probably along the eastern border of the WSA, where the thickest accumulations of ash-fall tuff occur, and may disturb five acres, including 3 miles of new road construction. While mineable quantities of perlite may occur, there are other very large deposits that would satisfy local and regional demand for the foreseeable future. Consequently, no development is projected.

Due to a lack of direct evidence indicating favorability and an absence of confirmed deposits, only casual non-surface-disturbing exploration (without development) is projected for bentonite, which has moderate potential for occurrence, based on indirect evidence.

Total surface disturbance resulting from projected energy and mineral exploration/development is estimated to be 120.5 acres (including five mine sites and 9 miles of new/upgraded road construction) for mineral development, and 20 acres (including 9 miles of new/upgraded road construction) for mineral exploration.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. The Honeycombs WSA would be used as a source area for California bighorn sheep transplants to other suitable locations. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portions of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for livestock management and inspection and maintenance of 5 miles of fences, 1 mile of pipeline, 3 springs and 2 reservoirs would continue on 8 miles of ways and 6 miles of road. Much of the area is inaccessible to vehicles, thus much of the livestock management is conducted on horseback. A spring would be developed to improve livestock distribution.

Recreation Management Actions

Vehicle use would continue to be excluded from the 11,330-acre Honeycombs ORV closure and limited by vehicle designation to 8 miles of existing roads and 8 miles of existing ways in the rest of the WSA.

Current recreational use is estimated to be 2,000 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.
3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural because the rugged terrain and lack of access have limited the number of unnatural features. Most of the WSA is pristine.

Forty-seven interior, unnatural features influence approximately 6 percent of the WSA. There are 8 miles of ways, two reservoirs, three developed springs, one pipeline, eight sites with mining scars, one horsetrap and remnants of five old abandoned horse traps, four wildlife guzzlers, five fences (totaling 5 miles), and ORV closure signs installed by BLM.

Nearly all of these unnatural features are concentrated along the northern, southern and eastern boundaries and the dead-end road leading to Three Fingers Gulch and Shadscale Flat. The most heavily influenced areas are the east-facing slopes of Sheephead Ridge and the ridge west of Craig Gulch. The least influenced areas are the Honeycombs and the portion of the WSA between the dead-end road in Shadscale Flat and Leslie Gulch at the south end of the study area.

Major features outside the WSA that influence the naturalness of the area include the Leslie Gulch road, a cabin in Leslie Gulch, the Owyhee Reservoir, recreational cabins along the reservoir, and the Pelican Point airstrip. These unnatural features cumulatively affect only a small portion of the WSA.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Opportunities for solitude and primitive recreation in the WSA are outstanding. The major factor contributing to outstanding opportunities for solitude is the topographic screening provided by the steep and diverse terrain found in 84 percent of the WSA. The numerous canyons, gulches, draws, and ridges provide innumerable secluded areas and locations.

The remaining 16 percent of the WSA (Shadscale Flat, Sheephead Basin and an unnamed basin north of Three Fingers Gulch) contains moderately diverse terrain. The elongated shape and large size of the WSA encourage dispersion of visitors, so further enhance opportunities for solitude.

Areas offering outstanding day hiking opportunities are dispersed throughout the WSA, providing recreationists with a number of choices. The most popular locations would be the easily accessible and very scenic areas off Leslie Gulch Road, such as Juniper Gulch, Timber Gulch and several unnamed drainages. Other popular areas would be the numerous drainages accessible from the eastern and northern boundary roads, especially drainages providing access to the scenic Honeycombs. The Honeycombs contains a variety of attractions (including impressive geologic formations, bighorn sheep, raptor habitat and endemic plants) which would make it one of the WSA's most popular destinations.

Boaters on the Owyhee Reservoir are also potential hikers in the WSA because it is easily accessible by water. Perhaps the most attractive water access points would be the mouth of Carlton Canyon, Bensley Flat and the Iron Mountain area. Of these, Bensley Flat would probably receive the most use due to its location at the base of the Honeycombs.

The WSA offers outstanding opportunities for backpacking because of its size and the availability of numerous routes and access points, numerous scenic areas and numerous level campsites. However, scarcity of drinking water is a substantial drawback for backpackers.

The WSA also offers outstanding hunting opportunities because of the presence of bighorn sheep, mule deer and chukars, and outstanding opportunities for sightseeing, photography and wildlife viewing because of the geologic formations, endemic plants and diversity of wildlife.

Special Features

The Honeycombs WSA contains spectacular geologic formations created by the weathering of Leslie Gulch tuff. The tuff is exposed throughout the WSA and may be as much as 2,000 feet thick. The tuff’s great thickness, uniformity, and its relative resistance to weathering gave rise to the WSA’s impressive cliffs, outcrops and spires. Leslie Gulch tuff is also exposed in the Slocum Creek, Upper Leslie Gulch, Blue Canyon and Dry Creek Buttes WSAs.
Scenery in the WSA is outstanding. Numerous outcrops, rims and pinnacles are distributed throughout the WSA, especially in Leslie Gulch, Honeycombs, Painted Canyon and Carlton Canyon. Many of the exposed rock faces are dotted by spherical cavities, giving them a honeycomb or sponge-like appearance. These cavities often widen to form caves and shelves which are overhung by fragile stone lips with smoothly-flowing contours. The WSA’s abundant and varied geologic features create a landscape of stark beauty.

There are six plant species in the WSA that are of special interest. (These plants are discussed further in the Vegetation section.)

The rugged breaks and outcrops of this WSA form part of the Owyhee River bighorn sheep range. These animals were reintroduced into the Leslie Gulch portion of their traditional range in November 1964, and approximately 200 bighorn sheep now roam the rocky areas east of the Owyhee Reservoir. About 100 of the bighorn sheep use the WSA year-round. California bighorn sheep is a Federal candidate species for listing under the Endangered Species Act.

The WSA supports an unusually varied population of reptiles, including whiptails, collared lizards and leopard lizards. It is part of the winter range of 20 to 30 northern bald eagles, which are Federally listed as a threatened species in Oregon. The WSA also provides crucial deer winter range.

Juniper Gulch, located at the south end of the WSA, is one of the most ecologically complex sites in the WSA. The gulch contains numerous geologic formations, many junipers, and a large variety of plants, including at least two species of special interest.

Refer to Map 6 for the location of special features.

Diversity of the National Wilderness Preservation System

Based on the Bailey-Khchler method of classifying ecosystems, the Honeycombs WSA is located in the Intermountain Sagebrush Province, and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass, and big sagebrush/Idaho fescue communities.

Boise, Idaho is the one standard metropolitan statistical area with a population over 100,000 within five hours’ driving time of the WSA.

Energy and Mineral Development

Because most of the available mineral data was very general, Oregon Department of Geology and Mineral Industries (DOGAMI) did reconnaissance geochemical surveys of 18 WSAs under a BLM contract. This geochemical survey became the primary basis for the metallic minerals classification for this WSA. Technical details of the findings of the evaluation are incorporated in a DOGAMI report titled, “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” The study area was reevaluated by BLM geologists in April, 1988, using the DOGAMI report, a heavy mineral analysis conducted by Barringer Resources, Inc. and a recent mineral resources evaluation conducted by the U.S. Geological Survey titled, “Mineral Resources of the Honeycombs Wilderness Study Area, Malheur County, Oregon.”

The area has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

The mineral potential classifications for the WSA are shown in Table 3. Map 5 shows where mineral resources have moderate or high potential for occurrence in the WSA.

Surface geologic material found in the WSA consists predominately of Late Tertiary (Miocene) rhyolite ash-flow and air-fall tuffs, and volcaniclastic and clastic fluvialite and lacustrine sedimentary rocks. Other exposed rocks consist of Tertiary-Quaternary basaltic flows, dikes and sills, and Quaternary superficial material (alluvial-fans and stream-bed deposits). No pre-Tertiary rocks are exposed in the WSA and it is not known what underlies the Cenozoic cover, since there has been no deep drilling in the area which has penetrated the Tertiary rocks. However, as this area lies within the margins of Late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic rocks may occur at depth.
Energy Resources

Based upon indirect evidence, the entire WSA is considered to have moderate potential for the occurrence of oil and gas due to the inferred presence of pre-Tertiary sedimentary rocks at depth and the fact that it is situated in a sedimentary basin.

As of October 16, 1987, there were no oil/gas or other mineral leases in the WSA.

Mineral Resources

There are confirmed gemstone (picture jasper) occurrences along and adjacent to the eastern border of the WSA. They are found as small deposits and are restricted to silicified and pyritized fault and fracture zones in Late Tertiary tuffs. Several tons of jasper have been removed from a number of mining claims and prospects, resulting in approximately two acres of surface disturbance in the WSA. Based on this direct evidence, and the fact that the tuffs are found throughout the WSA, the entire WSA is considered to have a high potential for the occurrence of picture jasper.

Based on direct evidence, (i.e., known occurrences) approximately 27,000 acres in the northwestern and central portions of the WSA are considered to have moderate potential for the occurrence of gold and silver. Based on indirect evidence, the remainder of the WSA (12,000 acres) is also considered to have moderate potential for the occurrence of gold and silver. Silver is a strategic and critical mineral, but no confirmed deposits are located in the WSA.

Based on direct evidence, the entire WSA is considered to have moderate potential for the occurrence of perlite due to the presence of perlitic material in the volcanic tuff and the fact that this material is found throughout the WSA.

Based on indirect evidence, the entire WSA is considered to have moderate potential for the occurrence of bentonite due to the favorable rock types (tuffs and lacustrine tuffaceous sediments) and the inferred presence of bentonite.

While there have been a number of mining claims located in and adjacent to the Honeycombs WSA at various times, there were (as of October 16, 1987) five mining claims contained within the WSA’s boundaries, including one pre-FLPMA claim. All of these claims are located along the eastern border of the WSA.

Vegetation

A wide diversity of vegetation may be found throughout this WSA. The primary vegetative community is Wyoming big sagebrush/bluebunch wheatgrass. Salt desert shrub mosaics occur along the Owyhee Reservoir and include shrubs such as greasewood, spiny hopsage and shadscale. In the southern portion of the WSA, Wyoming big sagebrush occurs with Idaho fescue in some places, and in the southeastern corner of the WSA, with western juniper and curlleaf mountain mahogany. Bitterbrush is also commonly found in the southern portion. Numerous herbaceous perennials may be found throughout the WSA and include arrowleaf balsamroot, phlox, milkvetch, Indian paintbrush, penstemon and desert parsley. Where the topography of the unit is relatively flat, and particularly near the Owyhee Reservoir, vegetation is in early seral stage. Most of the area is in mid-seral stage, with pockets inaccessible to livestock in late seral stage and at the potential natural community.

Six plant species of special interest are found in the WSA. All are Federal candidate species for listing under the Endangered Species Act: *Astragalus sterilis* (sterile milkvetch), *Astragalus solitarius* (solitary milkvetch), *Mentzelia packardiae* (Packard’s blazing star), *Senecio erterae* (Erter’s groundsel), *Ivesia rhypara* (griny ivesia) and *Trilolium owyheense* (Owyhee clover). The groundsel and the blazing star are specific to Leslie Gulch ash deposits found only in the southern portion of the WSA and on the two WSAs immediately to the south. Although not considered endangered or threatened, two fern species highly uncommon in the desert environment also occur at a few locations in the southern portion of the WSA and in the Honeycombs.

Wildlife

Approximately 200 California bighorn sheep occupy suitable habitat east of Owyhee Reservoir. The Honeycombs WSA accounts for about 100 head in the herd. The present population has been built up from a transplant of 17 animals from British Columbia in 1965. California bighorn sheep are native to eastern Oregon. Due to the size of the herd and good vehicle access on the Leslie Gulch road, ODFW plans to use sheep in the area as transplant stock for releases elsewhere within the State.

The western portion of the WSA is crucial deer winter range, supporting a winter mule deer herd of at least 850 animals. Antelope use is very limited due to the
ruggedness of terrain in most of the unit. An estimated 20 antelope are present.

Northern bald eagles, currently Federally listed as a threatened species in Oregon, are winter residents and spring and fall migrants to Owyhee Reservoir. Twenty to thirty eagles normally use Owyhee Reservoir and the Owyhee River as long as open water is available for ducks and geese, their primary winter food source.

The WSA supports an unusually varied population of reptiles, including whiptails, collared lizards and leopard lizards.

Four guzzlers (wildlife watering devices) are located in the WSA.

**Watershed**

There are no perennial streams in the WSA.

**Livestock Grazing**

The WSA is located entirely within the Three Fingers grazing allotment. All public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 5 miles of fence, two reservoirs and three springs.

Livestock operators use motor vehicles on ways and the dead-end roads approximately five to ten times per year to inspect and maintain fences, springs and reservoirs, to check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

**Recreation Use**

Day hikers and backpackers currently visit this WSA. Most hiking activity originates from the well-maintained Leslie Gulch Road, but the Honeycombs is also a popular destination because of its spectacular scenic qualities.

Hunters in this WSA pursue mule deer, chukars and bighorn sheep, the area’s most valued game species. Only a very limited number of permits for bighorn sheep are issued each year. Hunters use the dead-end road for access into the Shadscale Flat and Three Fingers Gulch area, but overall the WSA’s roads and ways receive very little recreational use.

The excellent fishing and boating on the adjacent Owyhee Reservoir bring many people into the area, some of whom take advantage of the WSA’s recreation opportunities.

Overall recreation use in the WSA amounts to approximately 2,000 visitor days per year.

**Local Personal Income**

Livestock use at the current level of 1,755 AUMs and recreation use totaling 2,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $21,060 for livestock grazing and $24,000 related to recreation use of the WSA, for an overall total of $45,060. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

**4. Environmental Consequences**

**Introduction**

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

**Impacts of the Alternatives**

**All Wilderness**

Recommended suitable for wilderness: 39,000 acres
Recommended nonsuitable for wilderness: 0 acres

**Impacts on Wilderness Values**

All 39,000 acres of the WSA would be designated wilderness. Wilderness values within the entire 39,000 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude,
and primitive and unconfined recreation would be preserved. Special features (including geologic formations, special interest plants, outstanding scenery, bighorn sheep, crucial mule deer winter range, northern bald eagles and reptile habitat) would also be protected.

Naturalness

The WSA's naturalness (94 percent is not influenced by internal, unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of 8 miles of ways, which influence approximately 1,345 acres (almost 3.5 percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, revegetation would make the ways substantially unnoticeable. Approximately 3 miles of ways may receive periodic use every 5 to 10 years by heavy equipment needed to maintain two developed springs in the northeastern portion of the WSA. This infrequent use would not prevent revegetation of the ways. Another developed spring and two reservoirs would be maintained from existing roads with no disturbance to naturalness.

A designated community gravel pit is located at the WSA's eastern boundary. Presently, it is virtually indistinguishable from the surrounding terrain and is rarely, if ever, used. The gravel pit designation could be revoked if the WSA is designated wilderness.

Solitude

Opportunities for solitude provided by the WSA's large size and abundant topographic screening would be further improved through elimination of motorized vehicle use on 8 miles of ways. The northern portion of the WSA around Sheephead Basin and Iron Mountain and the portion of the WSA along the eastern boundary road would benefit most from the closures. Solitude in the central portion of the WSA is already enhanced by the Honeycombs ORV closure, and in the southern portion of the WSA there are no ways.

Three dead-end roads would remain open: a 1.75-mile-long road in the Sheephead Basin area; a 5.5-mile-long, branched road in the Shadscale Flat area; and a 0.75-mile-long road near the eastern boundary. Continued vehicle use on these roads would continue to disturb opportunities for solitude in adjacent areas. The Shadscale Flat road would have the greatest adverse impact on opportunities for solitude because it almost bisects the WSA, and is the only impediment to the creation of a core area, free of motor vehicle disturbances, extending the entire length of the WSA.

Primitive and Unconfined Recreation

Closure of 8 miles of ways to vehicle use would cause a slight increase in opportunities for primitive and unconfined recreation activities such as hiking, sightseeing, backpacking and photography by providing a larger area, free from vehicle disturbances, in which these activities could occur. Revegetation of the ways would improve the quality of these activities by providing a more natural, primitive, wild setting. The northern portion of the WSA would benefit most from the way closures because there are no ways in the southern portion of the WSA, the Honeycombs ORV closure already protects the WSA's central portion, and the road across Shadscale Flat would remain open, continuing vehicle disturbances in this area. Dead-end roads would also continue to disturb the natural setting of the Sheephead Basin area and a small area along the eastern boundary.

Special Features

Eliminating vehicle use on 8 miles of ways would reduce minor disturbances to bighorn sheep, mule deer, antelope, reptiles and other wildlife; reduce the possibility of inadvertent disturbance of special interest plants; and cause a minor improvement of scenic values.

The Honeycombs ACEC/NA, Leslie Gulch ACEC, Honeycombs ORV closure, and the no-surface occupancy restriction for mineral leases within sight of the Owyhee Reservoir protect many of the special features in the WSA's most sensitive areas. Wilderness designation would strengthen this protection and extend it over the entire WSA. Wildlife populations and habitat, special interest plants, distinctive ecological relationships and outstanding scenic values would benefit from the increased protection.

Conclusion: Wilderness designation of the entire 39,000 acres within the Honeycombs WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 39,000 acres within the WSA to mineral entry.

Energy Development

Exploration for energy resources, including oil and gas, would be precluded on 39,000 acres. No energy
development activities have been projected because there is insufficient geologic evidence to justify a serious exploration and development program.

Conclusion: No impact on energy development is expected.

Mineral Development

Projected exploration for mineral resources, including gemstones (picture jasper), gold, silver, perlite and bentonite, would be precluded on 39,000 acres. As a result of wilderness designation, production from one projected open-pit gold/silver mine and production from one projected jasper mine would be foregone.

Continued production from three picture jasper mines on five existing lode mining claims, located in the northeastern and southeastern portions of the WSA, is projected to occur.

Conclusion: Wilderness designation would result in foregone production from one projected gold/silver mine and one projected picture jasper mine. Production would occur from three jasper mines on existing claims.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation over most of the area. Vegetation composition, as described in the vegetation section in the Affected Environment, would not be changed. Ecological condition, which is primarily in early to mid-seral stage with some areas in late seral stage, also would not change because there would be no change in grazing practices.

Eight miles of ways, once closed to vehicles, would revegetate within three to five years.

Conclusion: The 8 miles of ways would revegetate. Little or no change would occur to vegetation over the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 100 California bighorn sheep, 200 mule deer, 20 antelope, northern bald eagles, reptiles and other nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans. Wildlife would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy.

Closure of 8 miles of ways would reduce minor vehicle disturbances to mule deer, antelope and bighorn sheep.

Conclusion: Wildlife habitat and populations would be maintained or slightly enhanced throughout the WSA.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portion of the allotment in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 8 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and slight additional expense to livestock operators. Much of the area is presently inaccessible to vehicles, thus much livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of two reservoirs, 1 mile of pipeline and three springs. This periodic infrequent use would involve 3 miles of ways. The development of a spring would be precluded, resulting in the foregone opportunity to improve livestock distribution.

Conclusion: Existing livestock use would remain at 1,755 AUMs. Eight miles of ways would be closed to vehicles, causing some inconvenience and a slight increase in cost to livestock operators. Improved livestock distribution would be foregone.

Impacts on Recreation Use

Closing 8 miles of ways would have little impact on recreation use because the ways are rarely used by recreationists. Three dead-end roads would remain open, providing continued vehicle access to the Shadscale Flat area, Sheephead Basin area, and a small area along the eastern boundary. Vehicle-based hunting and sightseeing could continue on these roads.

Overall recreational use of the WSA would increase as public awareness grows of existing wilderness qualities within the WSA. In addition, increasing recreational use of the Owyhee Reservoir and Leslie Gulch would bring more people into this area, some of whom would visit the WSA, contributing to higher recreational use levels. Overall recreation use is projected to increase from the current level of approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.
Conclusion: Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,755 AUMs and overall recreation use would increase by 2,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $24,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $24,000.

Partial Wilderness (Proposed Action)

Recommended suitable for wilderness: 36,600 acres
Recommended nonsuitable for wilderness: 2,400 acres

Impacts on Wilderness Values

Under the partial wilderness alternative, 36,600 acres would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be preserved. Special features (including geologic formations, special interest plants, bighorn sheep, reptile habitat, northern bald eagle wintering area, crucial mule deer winter range and outstanding scenery) would also be protected.

A total of 2,400 acres would not be designated wilderness, and wilderness values in this area would not receive special legislative protection. Wilderness values would be subject to the effects of the projected management actions.

Naturalness

The effects on naturalness in the portion of the WSA recommended suitable as wilderness would be similar to those occurring under the all wilderness alternative, except that the partial wilderness alternative also includes 5 miles of road closures.

Closing 5 miles of the branched, dead-end road in the Shadscale Flat area would allow revegetation of the road and would remove its influence from approximately 1,050 acres. Closure of 6 miles of ways would improve naturalness on approximately 1,000 acres. Within three to five growing seasons, revegetation would make the road and ways substantially unnoticeable. Approximately 3 miles of the Shadscale Flat road may receive periodic use every 5 to 10 years by heavy equipment needed to maintain Shadscale Spring. This infrequent use would not prevent revegetation of the road.

A virtually unnoticeable, rarely-used community gravel pit is located at the WSA's eastern boundary. The gravel pit designation could be revoked if the WSA is designated wilderness.

On the 2,400 acres recommended nonsuitable as wilderness, vehicle use would continue on 3 miles of roads and 2 miles of ways. These roads and ways would not revegetate and would continue to adversely influence naturalness on approximately 1,000 acres.

Projected mineral exploration in the nonsuitable portion of the WSA would result in three gold/silver drill sites and a perlitic drill hole/trench. These activities would cause 2 acres of surface disturbance, including 1 mile of new road construction. All roads and surface disturbance would be reclaimed and revegetated after completion of exploration activities, so the impact on naturalness would be short term.

Exclusion of 2,400 acres would eliminate the two areas within the WSA that are most heavily influenced by unnatural features. The Craig Gulch area contains numerous mining scars, while the Sheephead Ridge area contains a concentration of range projects, including 2 springs, 1 reservoir, 1 mile of pipeline, and 4.9 miles of fence. The only range projects remaining in the suitable portion of the WSA would be a spring, a reservoir, a horsetrap and 0.1 mile of fencing in Three Fingers Gulch.

Solitude

The effects on solitude in the portion of the WSA recommended suitable as wilderness would be similar to the all wilderness alternative except closure of 5 miles of the Shadscale Flat road would greatly enhance opportunities for solitude in the WSA's core area. Presently, the road almost bisects the WSA, and allows the only vehicle access into the core area. Closing it would provide an extensive area, free of vehicle disturbances, extending the length of the WSA. Closure of 6 miles of ways would improve opportunities for solitude mainly in the northern and eastern parts of the WSA, the same as under the all wilderness alternative.
On the 2,400 acres recommended nonsuitable as wilderness, vehicle use on 3 miles of roads and 2 miles of ways would continue to adversely influence opportunities for solitude in adjacent areas. Activity associated with projected mineral exploration would cause short-term disturbance to solitude opportunities adjacent to four drill sites and 1 mile of access roads. The disturbance would last only until completion of exploration activities.

**Primitive and Unconfined Recreation**

Closure of 5 miles of the Shadscale Flat road would greatly improve opportunities for primitive and unconfined recreation in the core area of the WSA by eliminating the only vehicle access to this area. Backpackers, hikers, campers, hunters, wildlife viewers and photographers would be provided with an extensive area in which to pursue their activities without the possibility of vehicle disturbances. Wildlife would also experience fewer disturbances, improving hunting, wildlife viewing and photographic opportunities. Within three to five years, revegetation would make the road substantially unnoticeable, thereby enhancing the natural setting and improving scenic values.

Closure of 6 miles of ways would slightly improve opportunities for primitive and unconfined recreation in the northern and eastern portions of the WSA, the same as under the all wilderness alternative.

On the 2,400 acres recommended nonsuitable as wilderness, continued vehicle use on 3 miles of roads and 2 miles of ways would continue to limit opportunities for primitive and unconfined recreation. Projected mineral exploration would temporarily disturb primitive recreation on adjacent areas. The impact of vehicle use and mineral exploration would be minor since the excluded areas are already heavily impacted by unnatural features and are not conducive to primitive and unconfined recreation activities.

**Special Features**

Eliminating vehicle use on 5 miles of road and 6 miles of ways in the suitable portion of the WSA would reduce minor disturbances to bighorn sheep, reptiles and other wildlife; reduce the possibility of inadvertent disturbances to special interest plants; and improve scenic values.

The Honeycombs ACEC/RNA, Leslie Gulch ACEC, Honeycombs ORV closure, and the no-surface occupancy restriction for mineral leases within sight of the Owyhee Reservoir protect many of the special features in the WSA’s most sensitive areas.

Wilderness designation would strengthen this protection and extend it over the entire 36,600 acres recommended suitable as wilderness. Wildlife populations and habitat, special interest plants, distinctive ecological relationships, and outstanding scenic values would benefit from the increased protection.

Since the 2,400 acres recommended nonsuitable as wilderness contain few, if any, of the WSA’s special features, continued use of roads and ways and projected mineral exploration would have no impact on special features.

**Conclusion:** Wilderness designation of 36,600 acres would protect and enhance existing wilderness values. On the 2,400 acres recommended nonsuitable as wilderness, wilderness values would be impaired on 2 acres, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 36,600 acres within the WSA to mineral entry. A total of 2,400 acres recommended as nonsuitable for wilderness would be open to mineral entry.

**Energy Development**

Exploration for energy resources, including oil and gas, would be precluded on 36,600 acres. Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual nonsurface-disturbing exploration (with no development) is projected for oil and gas on the 2,400 acres recommended nonsuitable as wilderness.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Exploration for mineral resources, including gemstones (picture jasper), gold, silver, perlite and bentonite, would be precluded on 36,600 acres.

As a consequence of wilderness designation, production from one projected gold/silver mine and one projected jasper mine would be foregone. Continued production from three existing picture jasper mines on five lode mining claims, located in the suitable portion of the WSA, is projected to occur.

The drilling of three exploratory gold/silver core holes in the nonsuitable portions of the WSA and the
digging of one exploratory perlite bulk sample pit/trench in the northeastern (nonsuitable) portion of the WSA is projected to occur.

Conclusion: Wilderness designation would result in foregone production from one projected gold/silver mine and one projected jasper mine. Production would occur from three jasper mines on existing claims.

Impacts on Vegetation

In the portion of the WSA recommended suitable as wilderness, 6 miles of ways and 5 miles of roads, once closed to vehicles, would revegetate in three to five years.

In the portion of the WSA recommended nonsuitable as wilderness, short-term impacts to vegetation are anticipated from mineral exploration activities for gold, silver, and perlite. Four exploratory core holes or trenches and 1 mile of access road would disturb vegetation on two acres, with revegetation occurring within three to five years if no further development takes place. None of the special interest plant species are known to occur in the vicinity of projected mineral exploration. However, a search would be conducted prior to drilling, and monitoring and mitigation measures would either avoid or minimize impacts to special interest plants if any are found.

Little or no change is anticipated to vegetation over the rest of the WSA.

Conclusion: Six miles of ways and 5 miles of roads would revegetate. Vegetation would be temporarily disturbed on two acres. Little or no change would occur to vegetation over the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 100 California bighorn sheep, 200 mule deer, 20 antelope, northern bald eagles, reptiles and other nongame species would be maintained under the partial wilderness alternative. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans. Wildlife would continue to be managed to support existing wildlife populations in accordance with ODFW management goals, and on the 36,600 acres recommended suitable as wilderness, in a manner consistent with BLM wilderness management policy.

Closure of 6 miles of ways and 5 miles of roads would reduce minor vehicle disturbances of deer, antelope and bighorn sheep. In the portion of the WSA recommended nonsuitable as wilderness, exploration for gold, silver and perlite would cause minor and temporary habitat losses and displacement of mule deer, and possibly bighorn sheep, with construction of 1 mile of new road and two acres of surface disturbance. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities cease, habitat is rehabilitated and roads constructed for exploration are closed.

Conclusion: Wildlife habitat and populations would be maintained or slightly enhanced throughout the portion of the WSA recommended suitable as wilderness. Habitat and populations would be maintained in the portion of the WSA recommended nonsuitable as wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portion of the allotment in the WSA.

In the portion of the WSA recommended suitable as wilderness, vehicle use for livestock management and facility inspection/maintenance would be precluded on 6 miles of ways and 5 miles of roads. This would result in some inconvenience and a slight additional expense to livestock operators. Much of the area is presently inaccessible to vehicles, thus much of the livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of a spring. This periodic infrequent use would involve 3 miles of road. The development of a spring would be precluded, resulting in the foregone opportunity to improve livestock distribution.

In the portion of the WSA recommended nonsuitable as wilderness, 3 miles of roads and 2 miles of ways would remain open for day-to-day livestock management and facility inspection/maintenance.

Conclusion: Existing livestock use would remain at 1,755 AUMs. Six miles of ways and 5 miles of roads would be closed to vehicles, causing some inconvenience and a slight increase in cost to livestock operators. Improved livestock distribution would be foregone.

Impacts on Recreation Use

Closing 6 miles of ways would have little impact on recreation use because the ways are rarely used by recreationists. Closing 5 miles of roads in the
Shadscale Flat area would eliminate vehicle-based hunting and sightseeing in this area, but would encourage more primitive recreation use.

In the nonsuitable portion of the WSA, vehicle-based recreation would continue on 3 miles of roads and 2 miles of ways. The presence of unnatural features in these areas currently discourages primitive recreation, so almost all recreation is vehicle-based. Excluding these areas from wilderness designation, would allow the vehicle-based recreation to continue while preserving the WSA's core area for primitive recreation.

Overall recreational use of the WSA would increase as public awareness grows of existing wilderness qualities within the WSA. In addition, increasing recreational use of the Owyhee Reservoir and Leslie Gulch would bring more people into this area, some of whom would visit the WSA, contributing to higher recreational use levels. Overall recreation use is projected to increase from the current level of approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.

Conclusion: Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,755 AUMs and overall recreation use would increase by 2,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $24,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $24,000.

No Wilderness/No Action

Recommended suitable as wilderness: 0 acres
Recommended nonsuitable as wilderness: 39,000 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 39,000 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values (naturalness, solitude, primitive and unconfined recreation) and the area's special features would be subject to the effects of the projected management actions. Projected actions include energy and mineral exploration and development, development of one spring, continued vehicle use for livestock management and facility inspection/maintenance, recreational vehicle use excluded from the Honeycombs ORV closure and limited by vehicle designation to existing roads and ways over the rest of the WSA, continued designation of a community gravel pit, and continued application of restrictions associated with ACEC and RNA designations and no surface occupancy on mineral leases within sight of the Owyhee Reservoir.

Naturalness

Continued vehicle use on the 8 miles of ways and 8 miles of dead-end roads would maintain the impact of vehicle tracks upon naturalness on approximately 1,350 acres (almost 3.5 percent) of the WSA for the ways, and 1,750 acres (4.5 percent) of the WSA for the roads.

Projected mineral exploration would result in 36 drill sites, 9 miles of new roads and 20 acres of surface disturbance. The drill sites would be scattered throughout the central portion of the WSA, usually in moderately-rolling terrain. All roads and surface disturbance would be reclaimed and revegetated after completion of exploration activities, so in most areas the impact on naturalness would be short term.

Discovery and development of an economic gold/silver deposit is projected, probably in the south-central portion of the WSA. Development would cause approximately 100 acres of surface disturbance, including 2 miles of new/upgraded road construction. The mine would influence naturalness over much of the Shadscale Flat area and on surrounding ridges and high points. Depending on the exact location of the mine, its visual influence could extend over 1,000 acres or more.

Projected development of four jasper mines would cause 20 acres of new surface disturbance, including 7 miles of new roads, and would influence naturalness on approximately 525 acres in the eastern portion of the WSA. The impacts on naturalness would be long term, lasting as long as mineral development continued.

A designated gravel pit along the WSA's eastern boundary would remain open for public use. Currently the gravel pit is rarely, if ever, used because gravel can be obtained more conveniently from other locations. Future use would impair naturalness in the vicinity of the pit.
Development of a spring in the Craig Gulch area would cause less than one acre of surface disturbance and would influence naturalness on approximately 25 acres.

In total, projected management actions, including mineral development and range projects, would cause approximately 120 acres of surface disturbance, and have a long-term influence on the naturalness of approximately 1,550 acres.

Solitude

Continued vehicle use on 8 miles of ways and 8 miles of dead-end roads and the human activity associated with mineral exploration would cause short-term local impairment of opportunities for solitude in adjacent areas. Opportunities for solitude in the 11,930 acre Honeycombs ORV closure would continue to benefit from vehicle exclusion.

Activity associated with the projected development of four jasper mines would impair opportunities for solitude on approximately 525 acres in the eastern portion of the WSA. The influence on opportunities for solitude would be long term.

Projected development of a 100-acre open-pit gold/silver mine would cause long-term impairment of opportunities for solitude on approximately 1,000 acres in the south-central portion of the WSA. Human activity associated with the mine, and increased vehicle use of the Shadscale Flat road and new access roads would impair solitude in this area.

Primitive and Unconfined Recreation

Vehicle use would continue to be excluded from the Honeycombs ORV closure area and would be limited to existing roads and ways in the rest of the WSA. However, such use would continue to intrude upon primitive, non-motorized recreation in the vicinity of 8 miles of ways and 8 miles of dead-end roads.

Projected mineral exploration would cause short-term, local impairment of opportunities for primitive and unconfined recreation by temporarily displacing wildlife, and increasing noise, human activity and disturbance in areas adjacent to exploration sites.

Projected development of four jasper mines would impair opportunities for primitive recreation over approximately 525 acres in the eastern portion of the WSA. Projected development of a gold/silver mine would impair primitive recreation on approximately 1,000 acres in the south-central portion of the WSA. During operation of the mines, wildlife would be displaced, vehicles would operate along the access roads, and the natural setting upon which primitive recreation depends would be degraded. The impacts of mineral development would be long term, lasting as long as mine development continued.

Development of a spring in the west-central portion of the WSA would slightly benefit primitive and unconfined recreation in this area by providing a reliable water source where none currently exists.

Special Features

Continued vehicle use on 8 miles of ways and 8 miles of dead-end roads would continue to cause minor disturbances to bighorn sheep, reptiles and other wildlife; continue the possibility of inadvertent disturbance of special interest plants; and continue to reduce scenic values in nearby areas.

Projected development of four jasper mines and a gold/silver mine would harm scenic values in areas near mine sites and would have a major impact on bighorn sheep, causing long-term habitat losses and displacement of these animals. Direct mortalities and habitat losses would eliminate or severely reduce local populations of reptiles.

The Honeycombs ACEC/RNA, Leslie Gulch ACEC, Honeycombs ORV closure, and the no-surface occupancy restriction for mineral leases within sight of the Owyhee Reservoir would continue to protect many of the special features in the WSA's most sensitive areas.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 1,550 acres (four percent) of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

The entire 39,000 acre WSA would be open to mineral entry.

Energy Development

Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (with no development) is projected for oil and gas.

Conclusion: There would be no impact on energy development.
Mineral Development

Projected exploration/development of picture jasper is projected to include the continued development of jasper from three mines on five lode mining claims in the northeastern and southeastern portions of the WSA and the development of a new mine in the east-central portion of the WSA.

Projected exploration/development of gold and silver would occur, and would include the drilling of 30 exploratory core holes in the central portion of the WSA and the development of one open-pit mine in the south-central portion of the WSA.

Exploration for perlite is postulated to include the digging of six exploratory bulk sample trenches/pits along the eastern border of the WSA. No development is projected.

Conclusion: There would be no impact on mineral development. Production would occur from four jasper mines and one gold/silver mine.

Impacts on Vegetation

Under the no wilderness alternative, short-term impacts to vegetation are anticipated from mineral exploration activities for gold, silver, and perlite. Thirty-six exploratory core holes or trenches and 9 miles of access road construction would disturb vegetation on 20 acres. Revegetation would occur within three to five years if no further development takes place.

A long-term impact to vegetation is anticipated with the projected development of four jasper mines. Vegetation would be removed on approximately 20 acres, including 7 miles of access roads which would remain unvegetated due to continued use. Projected development of a gold mine would remove vegetation on 100 acres, including 2 miles of new access roads.

Construction of a spring for livestock water would remove vegetation on a long-term basis on 0.5 acre. Utilization of key forage species would increase on approximately 10 acres near the spring, resulting in a more grazed appearance and a decrease of residual ground cover. However, development of the spring would aid in better distribution and management of livestock, resulting in a less-grazed appearance at some existing water sources as cattle use is distributed over a larger area.

Prior to implementation of any of the projected actions, a search would be conducted for special interest plants. If any are found, monitoring and mitigation measures would be used to either avoid or minimize impacts to these plants.

Conclusion: Approximately 120 acres of vegetation would be removed. Vegetation on approximately 20 acres would be temporarily disturbed. Little or no change would occur to vegetation throughout the rest of the area.

Impacts on Wildlife

Wildlife habitat for approximately 100 California bighorn sheep, 200 mule deer, 20 antelope, northern bald eagles, reptiles and other nongame species would continue to be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate wildlife forage and cover would continue to be provided in the preparation of livestock allotment management plans.

Projected exploration for gold, silver and perlite would cause minor and temporary wildlife habitat losses and displacement of mule deer, and possibly bighorn sheep, with construction of 9 miles of new road and 20 acres of surface disturbance. All wildlife species disturbed would probably reoccupy formerly-used areas after exploration activities cease, habitat is rehabilitated and roads constructed for exploration are closed.

Projected development of four jasper mines and one open-pit gold/silver mine would cause approximately 120 acres of surface disturbance and would have a major, long-term impact on wildlife. Bighorn sheep, and to a lesser extent mule deer, would suffer long-term displacement and habitat losses. Direct mortalities and habitat losses to small terrestrial species such as lizards and snakes would eliminate or severely reduce local populations.

The Leslie Gulch ACEC and Honeycombs ACEC/ RNA designations would continue to provide management guidance that would protect bighorn sheep habitat and minimize or mitigate adverse impacts to their wellbeing.

Conclusion: Mineral development would eliminate 120 acres of wildlife habitat, cause long-term displacement of bighorn sheep and mule deer, and eliminate or severely reduce local populations of reptiles and other small terrestrial species. Wildlife habitat and populations would be maintained throughout the rest of the WSA.
Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,755 AUMs within the portion of the allotment in the WSA.

Vehicle use for livestock management and facility inspection/maintenance would continue on 8 miles of ways and 8 miles of dead-end roads. A spring would be developed, resulting in improved livestock distribution.

Conclusion: Existing livestock use would remain at 1,755 AUMs. Livestock distribution would improve.

Impacts on Recreation Use

Motorized recreation use would continue on 8 miles of ways and 8 miles of roads. Although vehicle-based recreation accounts for little of the WSA’s total recreational use, vehicle-based hunters and sightseers, especially in the Shadscale Flat area, would benefit from the roads and ways remaining open.

Projected mineral exploration would result in 36 drill sites, 9 miles of new roads, and 20 acres of surface disturbance. There would be a temporary decline in recreation use of areas adjacent to exploration sites because of increased noise and human activity, minor displacement of wildlife, and disturbance to the natural setting.

Projected development of four jasper mines and a gold/silver mine would discourage recreation in adjacent areas for the same reasons as listed above for mineral exploration. Projected mine development would disturb recreation use on approximately 1,525 acres. The gold/silver mine would especially damage recreational opportunities because it would influence approximately 1,000 acres in the WSA’s core area. Impacts would be long term.

Development of a spring would have little impact on overall recreation use levels, but might encourage more camping and backpacking use of the area near the spring site.

Overall recreational use of the WSA would gradually increase because growing recreational use of the Owyhee Reservoir and Leslie Gulch would bring more people into this area, some of whom would visit the WSA. Recreation use is projected to increase from the current level of approximately 2,000 visitor days per year to approximately 3,000 visitor days per year.

Conclusion: Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 3,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,755 AUMs. Projected energy and mineral development would amount to one metallic mine and one non-metallic mine. Overall recreation use would increase by 1,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $12,000 per year, plus an unknown level of increase attributable to the projected energy and mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $12,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (Partial Wilderness), on the 36,600 acres recommended suitable as wilderness, projected energy and mineral exploration, production from a projected gold/silver mine and a projected jasper mine, and improved livestock distribution from development of a spring would be foregone. Vehicle use would be excluded from 6 miles of ways and 5 miles of roads, eliminating opportunities for vehicle-based recreation, and causing some inconvenience and a slight additional expense for livestock operators.

On the 2,400 acres recommended nonsuitable for wilderness, projected mineral exploration activities would lead to unavoidable adverse impacts to wilderness values as a result of two acres of surface disturbance.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, on the 36,600 acres recommended suitable as wilderness, most existing short-term uses would continue, with some added but minor inconvenience and expense to livestock operators resulting from the exclusion of vehicles for day-to-
day inspection activities. Vehicle-based recreation would be replaced by primitive, non-motorized recreation. The long-term productivity of wilderness values would be preserved on 36,600 acres. On 2,400 acres recommended nonsuitable for wilderness, future development options would remain open, with possible declines in wilderness values from development actions over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the proposed action there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource from projected actions.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The WSA is capable of being managed to preserve its wilderness characteristics. However, there would be manageability problems associated with continued development of mining claims along the eastern boundary, maintenance of range projects around Sheephead Ridge, and continued use of the horse trap road and the road through Shadscale Flat.

There are five existing mining claims with possible "valid existing rights" in the eastern portion of the WSA. Development on these claims could continue even after wilderness designation, making manageability as wilderness difficult in these areas.

Rationale for Selection of the Proposed Action

The partial wilderness alternative is the proposed action because it would designate as wilderness the portions of the WSA with high wilderness values and minimal conflicts with non-wilderness values, and would recommend as nonsuitable for wilderness designation the portions of the WSA with low wilderness values and significant conflicts.

Wilderness values within the area recommended suitable include the Leslie Gulch volcanic tuff geologic formation, a high concentration of special interest plants, bighorn sheep habitat, crucial deer winter range, northern bald eagle winter range, excellent reptile habitat, distinctive ecological interrelationships, outstanding scenery, and outstanding opportunities for solitude and primitive and unconfined recreation. The benefits of preserving these values would outweigh the benefits of maintaining options for exploration and development of energy and mineral resources, development of a spring, and continued vehicle use on 6 miles of ways and 5 miles of road.

The areas recommended nonsuitable as wilderness (2,400 acres) include the Craig Gulch area which contains a number of mining scars, and the Sheephead Ridge area which contains a concentration of range projects. Exclusion of these areas would improve manageability by allowing unrestricted use and maintenance of range projects, and by eliminating an area in which mining activity is likely to continue. Neither of the excluded areas has the variety of wilderness values that exists in the rest of the WSA.

Closing the branched, dead-end road in Shadscale Flat would enhance the area's naturalness, opportunities for solitude and primitive recreation, and wildlife habitat.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Boundaries of suitable recommendation are poorly drawn. Extend the boundary to Sheephead Ridge and make the area complete. Response: The boundary in this area has been slightly modified since the Draft EIS but still excludes Sheephead Ridge. The boundary was drawn in this
manner in order to exclude a concentration of existing range projects. See Section 2, Description of Alternatives, and the part of Section 5 entitled, Rationale for Selection of the Proposed Action.

Comment: Combination with other areas would protect natural resources. Combine with 3-74 (Upper Leslie Gulch WSA) and 3-75 (Slocum Creek WSA) and close the roads between them. Response: This WSA is separated from the others by the Leslie Gulch road. Since this road provides the only access to boat launching facilities on Owyhee Reservoir, it cannot be closed. See Section 2, Description of Alternatives, for a discussion of alternatives considered but not analyzed.

Comment: Close the road into Shadscale Flat. Response: Closure of this road is recommended under the proposed action.

Comment: Acquire the private land. Response: There is no private land within the WSA boundaries. The Mud Springs private parcel on the WSA’s southern boundary has a cabin developed on it and was not considered for inclusion in the WSA.

Comment: Other Federal designations are more appropriate. Just close 3-77A, 3-77B and 3-75 to off-road vehicles. Response: Part of 3-77A (the Honeycombs proper) is already closed to off-road vehicles. Portions of the study area are also designated as a Research Natural Area and as an Area of Critical Environmental Concern. This EIS is intended to assist in amending existing plans to add consideration of the wilderness issue in those plans and to respond to a Congressional requirement to review and analyze roadless areas for wilderness potential.
Table 1. Summary of Proposed Management Under Each Alternative, Honeycombs WSA (OR-3-77A)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>39,000</td>
<td>36,600</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>27,000</td>
<td>24,670</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>8</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>5.5</td>
<td>6.5</td>
<td>18</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>39,000</td>
<td>36,600</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Springs (number)</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^1\)Approximately 11,930 acres in the WSA are already closed to ORV use under the current land use plan. Except for 8 miles of roads and 8 miles of ways, the remaining acreage in the WSA is already closed to cross-country vehicle use through a "limited" ORV designation.
<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Partial Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 39,000 acres would protect and enhance existing wilderness values.</td>
<td>Wilderness designation of 36,600 acres would protect and enhance existing wilderness values. On 2,400 acres recommended nonsuitable as wilderness, wilderness values would be impaired on 2 acres with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 1,550 acres (4 percent) of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy development is expected, since none is projected. Wilderness designation would result in foregone production from one projected gold/silver mine and one projected jasper mine. Production would occur from three jasper mines on existing claims.</td>
<td>No impact on energy development is expected, since none is projected. Wilderness designation would result in foregone production from one projected gold/silver mine and one projected jasper mine. Production would occur from three jasper mines on existing claims.</td>
<td>There would be no impact on energy or mineral development. Production would occur from one gold/silver mine and four jasper mines.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Eight miles of ways would revegetate. Little or no change would occur to vegetation over the rest of the WSA.</td>
<td>Six miles of ways and 5 miles of road would revegetate. Vegetation would be temporarily disturbed on 2 acres.</td>
<td>Approximately 120 acres of vegetation would be removed. Twenty acres of vegetation would be temporarily disturbed. Little or no change would occur to vegetation over the rest of the area.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained or slightly enhanced throughout the WSA.</td>
<td>Wildlife habitat and populations would be maintained or slightly enhanced on the 36,600 acres designated wilderness. On the 2,400 acres not designated wilderness, wildlife habitat and populations would be maintained.</td>
<td>Mineral development would eliminate 120 acres of wildlife habitat, cause long-term displacement of bighorn sheep and mule deer, and eliminate or severely reduce local populations of reptiles and other small terrestrial species.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use would remain at 1,755 AUMs. Eight miles of ways would be closed to vehicles, causing some inconvenience and slight increase in cost to livestock operators. Improved livestock distribution would be foregone.</td>
<td>Existing livestock use would remain at 1,755 AUMs. Six miles of ways and 5 miles of road would be closed to vehicles, causing some inconvenience and slight increase in cost to livestock operators. Improved livestock distribution would be foregone.</td>
<td>Existing livestock use would remain at 1,755 AUMs. A spring would be developed, improving livestock distribution.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 4,000 visitor days per year.</td>
<td>Overall recreation use would increase from approximately 2,000 visitor days per year to approximately 3,000 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $24,000.</td>
<td>Annual local personal income would increase by approximately $24,000.</td>
<td>Annual local personal income would increase by approximately $12,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Honeycombs WSA (OR-3-77A)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (gold, silver)</td>
<td>See Map 5</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Mercury</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Optical Calcite</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Perlite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Gemstones (picture jasper)</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
</tbody>
</table>

**Legend:**

**Level of Potential**

- O - No indication for accumulations of energy/mineral resource
- L - Low potential for accommodations of energy/mineral resource
- M - Moderate potential for accumulations of energy/mineral resource
- H - High potential for accumulations of energy/mineral resource

**Level of Certainty**

- A - Insufficient data or no direct evidence
- B - Indirect evidence available
- C - Direct evidence but quantitatively minimal
- D - Abundant direct and indirect evidence

### Table 4. Existing and Potential Livestock Use, Honeycombs WSA (OR-3-77A)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three Fingers</td>
<td>14,634</td>
<td>3/1-5/1</td>
<td>20</td>
<td>1,755</td>
</tr>
<tr>
<td>(No. 0503)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Honeycombs WSA (OR-3-77A) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>No Change</td>
<td>+1</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+2,000</td>
<td>+2,000</td>
<td>+1,000</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+24,000</td>
<td>+24,000</td>
<td>+12,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$</td>
<td>+24,000</td>
<td>+24,000</td>
<td>+12,000</td>
</tr>
</tbody>
</table>
Wilderness Study Area Boundary
Boundary of Adjacent Wilderness Study Areas
Recommended Suitable for Wilderness
Recommended Non-suitable for Wilderness
Recommended Road Closure

U.S. Department of the Interior
Bureau of Land Management
Vale District
Honeycombs WSA
OR-3-77A

PARTIAL ALTERNATIVE
Moderate Potential (MB) for Gold and Silver

Moderate Potential (MC) for Gold and Silver

Entire WSA:
- Moderate Potential (MB) for Oil, Gas and Bentonite
- Moderate Potential (MC) for Perlite
- High Potential (HC) for Gemstones (Picture Jasper)

U.S. Department of the Interior
Bureau of Land Management
Vale District

Honeycombs WSA
OR-3-77A

MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES
Crucial Deer Winter Range

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SPECIAL FEATURES

MAP 6
Honeycombs WSA, OR-3-77A. Southern portion of WSA looking north up Juniper Gulch. Within area recommended suitable under the partial (proposed action) alternative. September 1983.

Honeycombs WSA, OR-3-77A. Central portion of WSA looking south down Painted Canyon. Within area recommended suitable under the partial (proposed action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Wild Horse Basin Wilderness Study Area (OR-3-77B)

1. Introduction

General Description of the Study Area

The Wild Horse Basin Wilderness Study Area (WSA) is located east of Owyhee Reservoir in Malheur County, approximately 26 miles south of Vale and 36 miles northwest of Jordan Valley. U.S. Highway 20 lies 20 miles northwest of the WSA and U.S. Highway 95 is 15 miles east of the area (see Map 1).

The WSA contains 12,100 acres of public land (see Map 2). In addition, a 40-acre parcel of private land is located in the southeast portion of the WSA, accessed by an existing way.

The study area is crescent shaped, approximately 6.5 miles long east to west and 3 miles wide north to south at its center. The boundary of the WSA consists of roads on the south and east and Bureau of Reclamation and state land on the north and west. A dead-end road enters the WSA from the south near Indian Creek, forming part of the boundary, and extends 3.5 miles to a developed spring in Wild Horse Basin. All boundary roads are considered to be high standard dirt roads.

The terrain varies from steep and rugged slopes fronting the Owyhee Reservoir to rimmed plateaus and rolling hills in the eastern portion of the WSA. The canyons and ridges contain numerous basalt outcrops and rims. Elevation ranges from 2,600 feet along the west boundary near Owyhee Reservoir to 4,700 feet along Owyhee Ridge near the east boundary.

Vegetation in the WSA consists mainly of sagebrush, native bunchgrasses and cheatgrass.

Interrelationships

The WSA is adjacent to the Honeycombs WSA on the south. The Honeycombs WSA is adjacent to the Slocum Creek and Upper Leslie Gulch WSAs also to the south. All of these WSAs are separated by roads.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports populations of approximately 80 mule deer and 10 pronghorn antelope. ODFW manages the Owyhee Unit to produce 20 bucks per 100 does of antelope and 15 bucks per 100 does of mule deer. The ODFW management goal for nongame is to maintain populations of naturally occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

California bighorn sheep, a Federal candidate for listing under the Endangered Species Act, occupy the WSA. The ODFW management goal is to restore bighorn sheep into as much suitable unoccupied habitat as possible. Northern bald eagles (a Federally listed threatened species in Oregon) also occupy the area.

Land administered by Bureau of Reclamation in connection with its management of the Owyhee Reservoir lies between the WSA and the reservoir on the west and north.

Most of the WSA is in the Three Fingers Wild Horse Herd Management Area (HMA). Management objectives call for maintaining between 75 and 150 wild horses in the HMA. On the average of once every four years, the excess portion of the herd would be gathered by riders on horseback and helicopter. The trap site is located on the southern boundary road. Since management of wild horses would continue under each alternative with little or no difference it is not discussed further. Viewing of the wild horses is discussed under the recreation section.
Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on the 40-acre private inholding (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on vehicle access to Wild Horse Basin Spring on the dead-end road,
- impact on management of the wild horse herd (see the Interrelationships section),
- impact on energy and mineral exploration and development, and
- impact on a water pipeline right-of-way in the northeast portion of the WSA. (A spring, water cistern and pipeline on Birch Creek serves the Owyhee Reservoir Resort just north of the WSA. Vehicles are used to maintain the spring development. Under wilderness designation, vehicle use to maintain the development would be allowed if there were no other practical alternatives. Therefore, this issue is not discussed further in this appendix.)

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation.

These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- no wilderness/no action (proposed action)

A partial alternative is not analyzed because there are no major resource conflicts that would warrant recommending only a part of the WSA as suitable for wilderness. An enhanced alternative is not analyzed because there would be no substantial differences from the all wilderness alternative.

Comments suggested that the boundary road between this WSA and the Honeycombs WSA be closed and the two WSAs combined. This is not analyzed because the boundary road is essential for vehicle access to the resort cabins at the end of the road on Owyhee Reservoir. Combining this WSA with the Dry Creek Buttes WSA is not analyzed because the Owyhee Reservoir, which is managed by the Bureau of Reclamation, separates the WSAs.

All Wilderness

Under the all wilderness alternative, 12,100 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the private inholding would not be acquired and the dead-end road would remain open.

Energy and Mineral Development Actions

Wilderness designation would close 12,100 acres within the WSA to mineral entry. The 40-acre parcel of private land would be open to mineral exploration and development at the landowner’s discretion.

Exploration for energy resources would be prohibited on 12,100 acres. This includes geothermal resources, which have a high potential for occurrence based on direct evidence, and oil/gas, which has a moderate potential for occurrence based on indirect evidence. Due to the private land’s small acreage and the inability to expand onto the adjacent
wilderness should an economically-developable energy resource be discovered, only casual non-surface disturbing exploration without development is projected for geothermal resources and oil/gas.

Exploration for mineral resources would be prohibited on 12,100 acres. This includes optical calcite (which has a high potential for occurrence based on direct evidence) and perlite (which has a moderate potential for occurrence) also based on direct evidence. On the private land, due to its small acreage and the inability to expand onto the adjacent wilderness should an economically developable mineral deposit be discovered, only casual non-surface disturbing exploration (without development) is projected for optical calcite and perlite.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review of grazing allotment plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,513 AUMs within the portion of the allotment in the WSA. The period of use would remain as identified in Table 4. Vehicle use for livestock management on 2 miles of ways would be precluded. Management of livestock and inspection of 2 miles of fences, four developed springs and three reservoirs would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the three reservoirs and four developed springs. No range projects are proposed.

Recreation Management Actions

The entire 12,100 acres (excluding the dead-end road) would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to the 3.5 mile dead-end road and the 2 miles of existing ways. Current recreational use is estimated to be less than 500 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 12,100 acres would be open to mineral entry.

Exploration for geothermal resources, which have a high potential for occurrence based on direct evidence, is postulated to occur. Exploration would consist of geometric mapping and geophysical surveys, followed by the drilling of four 4,000 foot-deep geothermal gradient holes, in the northwestern portion of the WSA near an unnamed hot spring. The resulting surface disturbance would be approximately three acres, including 2 miles of new road. As there are no developments in the WSA that could use geothermal energy as a direct heat source, and the discovery of thermal waters hot enough for electrical generation is not expected, no development is anticipated.

Due to a lack of direct geologic evidence indicating favorability, an absence of confirmed petroleum formations, a relatively thick volcanic cover, and an absence of existing mineral leases, only casual non-surface disturbing exploration (with no development) is postulated for oil and gas.

All of the WSA has high potential, based on direct evidence, for optical calcite. As optical calcite has a very limited market which requires material of exceptional quality, only casual non-surface disturbing exploration (with no development) is projected.

The entire WSA has a moderate potential for perlite based on direct evidence. Exploration would likely consist of surface examination and sampling, including trenching, pitting, and core drilling. Three drill holes/trenches, resulting in three acres of surface disturbance, including 2 miles of new road is anticipated. A high quality deposit of sufficient tonnage (over 10 million tons) resulting in a surface mine is postulated in the southeast portion of the WSA. This operation would include the mine, processing plant and waste disposal facility, resulting in 30 acres of surface disturbance, including 1 mile of new road.
Total surface disturbance in the WSA resulting from energy and mineral exploration and development is postulated to be 36 acres, including 3 miles of new road.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,513 AUMs within the portion of the allotment in the WSA. The period of use would remain as identified in Table 4. Management of livestock and inspection of 2 miles of fences, four developed springs and three reservoirs would be conducted by vehicle on existing ways and the dead-end road and by horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain the three reservoirs and four developed springs. No range projects are proposed.

Recreation Management Actions

The use of motorized vehicles would continue to be restricted to the existing 3.5 miles of dead-end road and 2 miles of ways. Current recreational use is estimated to be less than 500 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. Eighteen interior unnatural features influence approximately 1,575 acres (13 percent) of the WSA. These features include three fences (2 miles), three reservoirs, four developed springs, a wildlife guzzler, a wild horse trap and several ways (2 miles). The eastern portion of the WSA, adjacent to Owyhee Ridge where the terrain is level or gently rolling, is the most heavily influenced by the unnatural features.

Unnatural features outside the WSA that affect the naturalness of the area consist of boundary roads, livestock management developments, the Owyhee Resort and recreation cabins and activities associated with Owyhee Reservoir. These outside influences are concentrated to the east and northeast of the WSA and moderately diminish the naturalness in this portion of the WSA.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The broken topography provides screening on approximately 75 percent of the WSA, which substantially enhances a visitor's ability to experience solitude. The flat to gently rolling eastern portion of the WSA and the exposed slopes fronting the Owyhee Reservoir would be most impacted by human activity with a corresponding decrease in solitude opportunities.

Recreational opportunities for hunting, bird watching, scenic and geological sightseeing and photography are good. No one activity is considered outstanding, but collectively the opportunities are outstanding. Hikers would be attracted to the scenery and challenging terrain. Hunters would be drawn to game populations of deer, antelope, chukar and quail. However, the steep terrain and confined configuration of the WSA limit these opportunities.
Special Features

Northern bald eagles, Federally listed under the Endangered Species Act as threatened in Oregon, winter on the Owyhee Reservoir (further discussed in the wildlife section). California bighorn sheep, a Federal candidate species for listing under the Endangered Species Act, occasionally use the WSA, although their primary range is in the Honeycombs area located south of the WSA. See Map 3.

Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass community.

Boise, Idaho, is the one standard metropolitan statistical area with population over 100,000 within five hours’ driving time of the WSA.

Energy and Mineral Development

The energy and mineral resources of the WSA were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment and rock chip sampling by Oregon Department of Geology and Mineral Industries (DOGAMI) under BLM contract. This geochemical survey is the primary basis for the metallic minerals classification in the WSA. The DOGAMI report is entitled “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” The study area was reevaluated by BLM geologists utilizing the DOGAMI report and a heavy mineral analysis conducted by Barringer Resources, Incorporated.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. Table 3 shows the mineral potential classification for the WSA.

Surface geologic material in the WSA consists largely of Late Tertiary olivine-poor basalt and andesitic basalt. Other exposed geologic material (southeastern corner of the WSA) consists of Late Tertiary volcanioclastic and clastic stream and lake sediments, intruded by Late Tertiary basalts in the forms of necks, sills and minor flows. Paleozoic and Mesozoic rocks may underlie the Cenozoic cover at unknown depths since this WSA is within Late Paleozoic and Triassic depositional basins.

Energy Resources

Based on direct evidence, the entire WSA has a high potential for occurrence of geothermal resources due to the presence of a hot spring near the western boundary, numerous fault zones and the abundance of igneous material with moderate to high silica content.

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas because of the possibility of oil-bearing rocks at depth. However, there has been no deep drilling in the vicinity that has penetrated the Tertiary volcanic cover.

As of October 16, 1987, there were no oil/gas, geothermal or coal leases within the WSA.

Mineral Resources

Based on direct evidence, optical calcite has a high potential throughout the WSA due to its known occurrence in the southern portion of the WSA and the presence of similar rock types throughout the area. The WSA also has a moderate potential for perlite, due to the presence of glassy material and favorable rock types found throughout the WSA.

As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Vegetation is characteristic of a sagebrush-steppe ecosystem. The potential natural vegetative community in the WSA is Wyoming big sagebrush/bluebunch wheatgrass. Currently, this vegetative community is predominately in an early to mid-seral ecological status. Pockets of this community in late seral status occur in areas relatively inaccessible to livestock. Broom snakeweed, a low-growing, invasive shrub, is scattered throughout the WSA. Isolated patches of
riparian vegetation are found in the lower reaches of Birch Creek and Indian Creek and include species such as willow, rose and golden currant.

There are no known threatened or endangered plant species within the WSA.

Wildlife

Wildlife is moderately abundant due to plentiful water sources within and adjacent to the WSA. Mule deer occur throughout the area yearlong. Antelope use the southeast portion of the study area during the summer. California bighorn sheep, a Federal candidate species for listing under the Endangered Species Act, occur to the south of the WSA in the Honeycombs area. Sheep occasionally use the WSA even though it is outside their primary range. Chukar, California quail and mourning doves are common in the WSA.

Northern bald eagle, Federally listed under the Endangered Species Act as threatened in Oregon, pass through the area on their annual spring and fall migrations. Some birds winter on the Owyhee Reservoir as long as open water persists. Twenty to 30 eagles have been counted during January surveys.

A wildlife guzzler, located in the southeastern portion of the WSA on Owyhee Ridge, provides water primarily for chukar.

Watershed

The WSA contains no perennial streams.

Livestock Grazing

The WSA is located entirely within the Board Corrals grazing allotment. All public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments include 2 miles of fences, three reservoirs and four developed springs.

Livestock operators use motor vehicles on ways and the dead-end road approximately 5 to 10 times per year for fence, spring and reservoir inspection and maintenance, to check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

Recreation use in the WSA includes camping, day hiking, hunting, sightseeing (including wild horses) and photography. The majority of use results from hunting and hiking into the area from the Owyhee Reservoir and from the boundary roads. Use of vehicles is limited by off-road vehicle designation to existing roads and ways. Vehicle use is light and usually associated with hunting.

Recreation use in the WSA amounts to approximately 500 visitor days per year.

Local Personal Income

Livestock use at the current level of 1,513 AUMs and recreation use totaling 500 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $18,156 for livestock grazing and $6,000 related to recreation use of the WSA, for an overall total of $24,156. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 12,100 acres.
Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

All 12,100 acres of the WSA would be designated wilderness. Wilderness values within the entire 12,100 acres (with the exception of the 40-acre
private inholding) would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. The bald eagle and bighorn sheep, as special features, would also be protected.

Naturalness

The naturalness of the area's rugged drainages and slopes (87 percent of the WSA is uninfluenced by any unnatural features) would be enhanced by prohibiting motorized vehicle use on 2 miles of ways, which influence approximately 400 acres (about three percent of the WSA). This would allow the ways to revegetate within three to five growing seasons, making the two parallel vehicle tracks unnoticeable.

One of the three reservoirs and two of the developed springs have no existing access and would require cross-country maintenance every 5 to 10 years. One spring and the guzzler are accessed by ways. Infrequent cross-country access and use of the rehabilitated ways would cause little noticeable disturbance to naturalness. The other two reservoirs and one spring are near the WSA boundary and would be maintained from the existing boundary roads.

Solitude

Opportunities for solitude provided by the area's topographic screening would be further improved through the elimination of motorized use on the 2 miles of ways. Vehicles would be limited to the boundary roads and the dead-end road. This slight reduction in vehicular access would provide a slightly larger area for people to hike into and experience solitude with no disturbance from vehicle use. The overall impact upon solitude would be minimal since the area influenced by activity on the ways is also influenced by activity on the nearby boundary roads.

Primitive and Unconfined Recreation

Closure of the 2 miles of ways to motorized use would slightly increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography and sightseeing experiences would slightly improve with the removal of vehicles and the rehabilitation of the ways. A more natural, primitive, wild setting would be provided.

Special Features

Eliminating motorized vehicle use on the 2 miles of ways would have little impact on the bald eagle or bighorn sheep as special features.

Conclusion: Wilderness designation of the entire 12,100 acre WSA would result in protection and enhancement of existing wilderness values.

Impacts on Mineral and Energy Development

Wilderness designation would close 12,100 acres within the WSA to mineral entry. The 40-acre private parcel would be open to mineral exploration.

Energy Development

Exploration and development for geothermal resources would be precluded on 12,100 acres. The projected exploration in the northwest portion of the WSA involving two geothermal wells would be prohibited. No development is projected. Exploration and development could occur on the 40-acre private inholding. Due to the private land's small acreage and the inability to expand onto the adjacent wilderness should an economically developable energy resource be discovered, no exploration or development is anticipated.

Conclusion: There would be no impact on energy development.

Mineral Development

Exploration for the area's optical calcite and perlite would be precluded on 12,100 acres. As optical calcite has a very limited market which requires material of exceptional quality, only casual non-surface disturbing exploration is projected. Three projected drill holes/trenches for perlite would be prohibited. One projected perlite mine in the southeast portion of the WSA would be precluded. Exploration could occur on the 40-acre private inholding. However, due to a lack of geologic evidence to justify an extensive exploration/development program, only casual non-surface disturbing exploration (without development) is expected on the private inholding.

Conclusion: Production from one projected perlite mine would be foregone.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation over most of the area. Vegetative composition, as described in section 2, Affected Environment, would not be changed. Ecological status, which is mainly in early to mid-seral stage with some areas in late seral stage with a static to upward trend, would also not change because current grazing practices would continue.
The 2 miles of ways, once closed to vehicles, would revegetate within approximately three to five years.

Conclusion: The 2 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 80 deer, 10 antelope, occasional bighorn sheep, chukar and nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would continue to be ensured in the preparation of livestock allotment management plans. Wildlife populations would be maintained throughout the WSA.

Closure of the 2 miles of ways would reduce minor seasonal vehicle disturbances to wildlife populations.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSA.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,513 AUMs within the portion of the allotment in the WSA.

Vehicle use for livestock management and facility inspection/maintenance on 2 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and a slight additional expense to livestock operators. Much of the area is presently inaccessible to vehicles, so much of the livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs and four developed springs. This periodic infrequent use would involve 1 mile of way and 2 miles of cross-country travel.

Conclusion: Existing livestock use of 1,513 AUMs would continue, and 2 miles of ways would be closed causing some inconvenience and a slight increased cost to livestock operators.

Impacts on Recreation Use

Closing of the 2 miles of ways would only slightly impact vehicular access, and is not expected to cause a reduction in day hiking or hunting. As the public becomes aware of the area's wilderness qualities and primitive recreation opportunities, increased visitation from wilderness users would offset any decreases in vehicle-oriented use. The area's recreation use level of approximately 500 visitor days per year is not projected to change.

Conclusion: The area's recreation use level would remain at the current level of approximately 500 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 1,513 AUMs and overall recreation use would remain at 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $24,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 12,100 acres.

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 12,100 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features of bald eagles and bighorn sheep would be subject to the affects of the projected management actions. Projected actions include energy and mineral exploration and development, continued vehicle use for livestock management and facility inspection and maintenance, and continued recreational vehicle use limited to existing roads and ways.

Naturalness

Continued vehicle use on the 2 miles of ways would maintain a direct impact of about eight acres and the visual impact of the vehicle tracks upon naturalness on approximately 400 acres (about three per cent of the WSA).
Projected energy and mineral exploration would cause short-term and localized impacts to the area's naturalness. Surface disturbance of six acres consisting of five drill holes/wells/trenches and 4 miles of temporary access roads which would visually influence 800 acres (about seven percent of the WSA) is expected. Reclamation and natural revegetation would leave little evidence of disturbance to naturalness after three to five growing seasons.

More long-term, but still localized surface disturbance resulting from the projected perlite mine and 1 mile of new road construction would cause 30 acres of surface disturbance in the southeast portion of the WSA. The long-term visual influence would affect approximately 1,700 acres (14 percent) of the WSA. Reclamation, including revegetation, would not be completed until after the life of the mine is exhausted.

**Solitude**

Continued vehicle use on 2 miles of ways and human activity associated with mineral exploration would cause short-term local impairment of solitude opportunities adjacent to the activity. Activity associated with development of the perlite mine would cause more long-term impairment of solitude opportunities in the southeast portion of the WSA. Solitude opportunities in the unroaded area, including the rugged winding canyons, would remain.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 2 miles of ways in the WSA.

Projected energy and mineral exploration and development would reduce primitive recreation opportunities. Energy and mineral exploration would result in short-term surface disturbance of small areas and require motorized vehicle access which would impair primitive recreation opportunities such as camping, hiking, hunting and sightseeing. Development of the perlite mine would cause more long-term surface disturbance, which would also impair primitive recreation opportunities, in the southeast portion of the WSA.

**Special Features**

Continued motorized vehicle use of existing ways would maintain the existing impacts on bald eagles and bighorn sheep. These impacts include minor seasonal disturbance.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 1,700 acres of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

The entire 12,100-acre WSA would be open to mineral entry.

**Energy Development**

Geothermal exploration consisting of geophysical surveys and geologic mapping, followed by thermal gradient drilling is anticipated. These tests are projected to involve two wells in the northwestern portion of the WSA. No energy development activity is anticipated due to a lack of sufficient geologic evidence.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

As optical calcite has a very limited market which requires material of exceptional quality, only casual non-surface disturbing exploration is projected.

Projected exploration for perlite would consist of surface examination and sampling, including trenching, pitting and core drilling. Three drill holes/trenches are anticipated. The discovery of a high quality deposit of sufficient tonnage (over 10 million tons) resulting in a surface mine with 1 mile of new access road is postulated in the southeast portion of the WSA. This operation would include the mine, processing plant and waste disposal facility.

**Conclusion:** No impact on mineral development is expected. Production would occur from one projected perlite mine.

**Impacts on Vegetation**

Little or no change would take place to vegetative composition or ecological status on most of the WSA. The 2 miles of ways would not revegetate due to continued use. Minor, short-term localized vegetative disturbance from energy and mineral exploration would occur. Surface disturbance consisting of five drill holes/wells/trenches and 4 miles of temporary access roads is expected. Reclamation and natural revegetation would leave little evidence of disturbance.
to naturalness after three to five growing seasons. Long-term removal of vegetation by the perlite mine and its 1 mile of access road would occur on 30 acres.

**Conclusion:** Vegetation would be removed on approximately 30 acres. Little or no change would occur to vegetation over the rest of the WSA.

**Impacts on Wildlife**

Deer and antelope populations and habitat would continue to be disturbed by occasional vehicle use on the existing 2 miles of ways. This would result in only minor seasonal disturbance. Energy and mineral exploration would cause minor, temporary disturbance of game (including deer, antelope and chukar) and nongame species within the vicinity of exploration activities. Projected development of a perlite mine would destroy 30 acres of wildlife habitat and would displace a small number of deer and antelope in the southeast portion of the WSA. Wildlife populations would be maintained in the remainder of the WSA.

**Conclusion:** Approximately 30 acres of wildlife habitat would be eliminated, and a small number of deer and antelope would be displaced.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 1,513 AUMs within the portion of the allotment in the WSA. Projected development of the perlite mine would not affect grazing levels in the area.

Vehicle use for livestock management and facility inspection/maintenance would continue on 2 miles of ways.

**Conclusion:** Existing livestock use would remain at 1,513 AUMs. There would be no impact on livestock grazing.

**Impacts on Recreation Use**

Motorized recreation use would continue on 2 miles of ways. Four miles of new mineral/energy exploration roads would be reclaimed after completion of exploration activities, but a mile of new road to the projected perlite mine would provide more long-term access for recreationists. Vehicle access for day hikes in the central portion of the WSA and vehicle-oriented hunting would continue. Surface disturbance and disruption of wildlife from mineral exploration would, temporarily, slightly disturb the natural setting for recreational activities, including hunting opportunities. Overall, however, minor declines in primitive recreation opportunities would be offset by minor increases in vehicle-dependent activities, thus maintaining the current recreation use level of approximately 500 visitor days per year.

**Conclusion:** The area’s recreation use level would remain at the current level of approximately 500 visitor days per year.

**Impacts on Local Personal Income**

Livestock grazing would remain at 1,513 AUMs. Projected energy and mineral development would amount to one non-metallic mine. Overall recreation use would remain at 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $24,000.

**Unavoidable Adverse Impacts of the Proposed Action**

Under the Proposed Action (No Wilderness/No Action), mineral development activities would lead to unavoidable adverse impacts to wilderness values as a result of 30 acres of surface disturbance which visually influences approximately 1,700 acres.

**Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity**

Under the Proposed Action, existing short-term uses such as use of the ways, would continue. Future development options such as energy and mineral development would remain open. Long-term productivity of wilderness values would be directly lost on 30 acres from surface disturbance and indirectly lost on approximately 1,700 acres from visual disturbance due to mine development. Further declines in wilderness values from other potential uses would be expected over the long term.
Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, projected mine development would result in an irreversible commitment of the wilderness resource on 30 acres directly, with the natural character of the WSA compromised on approximately 1,700 acres from the visual influence of the mine. There would also be an irretrievable commitment of the mineral resource.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area is capable of being managed to preserve its wilderness characteristics. Manageability would be slightly enhanced if the 40-acre private inholding were acquired and the 3.5 mile dead-end road was closed. The acquisition would prevent potential adverse effects from access to, and incompatible surface-disturbing activities on, this parcel. Closure of the dead-end road would remove vehicle access from the center of the WSA, thus improving solitude and primitive recreation opportunities. However, no development is projected on the 40-acre private parcel and the dead-end road receives very little use. Consequently, neither manageability enhancement action has been proposed or analyzed.

Maintenance of the water pipeline to the Owyhee Resort might cause minor manageability problems on the extreme northern boundary. Use of the wild horse trap would also present manageability problems, since it would need to be used periodically and could not be completely rehabilitated.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action due to the benefits to be gained by retaining development options and continuing existing uses in the WSA. Projected activities include geothermal exploration, development of a perlite mine, and the continued use of roads and ways for livestock management, facility maintenance and recreational access.

Manageability problems (including the wild horse trap, the water pipeline right-of-way, the private inholding and the dead-end road) would complicate wilderness management.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The BLM has inadequate data on vegetation. High quality bunchgrass communities occur in this WSA and are becoming rare. Response: The ecological status of the native bunchgrass communities in the WSA is variable, depending on topography and grazing pressure, but are mostly in an early to mid-seral stage. Pockets of the native bunchgrass communities in a late seral stage exist in areas inaccessible to livestock.

Comment: Close the road and combine with Honeycombs WSA. Response: The road between 3-77A and 3-77B provides the only access to cabins on the Owyhee Reservoir, so cannot be closed. Refer to section 2, Description of Alternatives, for a discussion of alternatives considered but not analyzed.

Comment: Outside sights and sounds is not an appropriate criteria for recommending the area nonsuitable. Response: Outside sights and sounds do lower the naturalness and impact a portion of the area. However, they are not overwhelming and were not used as rationale for determining the area’s nonsuitability.

Comment: Reasons for recommending the area nonsuitable are invalid. The road is washed out, not maintained, and major access is by boat. Response: The road is in poor condition and passable only with four-wheel-drive vehicles, but it is used to access resort cabins on the Owyhee Reservoir. It will not be considered for closure.
Comment: Close the roads and acquire the private lands. Response: Since no development is projected on the private inholding and the dead-end road receives little use, wilderness values would not be greatly enhanced by closing the road or acquiring the private land. Refer to section 2, Description of Alternatives, for a discussion of alternatives considered but not analyzed.
Table 1. Summary of Proposed Management Under Each Alternative, Wild Horse Basin WSA (OR-3-77B)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>12,100</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>12,100</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>12,100</td>
<td>0</td>
</tr>
</tbody>
</table>

¹Except for 2 miles of ways and 3.5 miles of dead-end road in the WSA, the acreage shown is already closed to cross-country vehicle use through a “limited” ORV designation.

Table 2. Summary of Environmental Consequences of Alternatives, Wild Horse Basin WSA (OR-3-77B)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire 12,100 acre WSA would result in protection and enhancement of existing wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 1,700 acres of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>There would be no impact on energy development. Production from one perlite mine would be foregone.</td>
<td>There would be no impact on energy or mineral development. Production would occur from one perlite mine.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>The 2 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the WSA.</td>
<td>Vegetation would be removed on 30 acres. Little or no change would occur to vegetation over the rest of the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildline habitat and populations would be maintained throughout the WSA.</td>
<td>Approximately 30 acres of wildlife habitat would be eliminated, and a small number of deer and antelope would be displaced.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use of 1,513 AUMs would continue, and 2 miles of ways would be closed causing some inconvenience and a slight increase in cost to livestock operators.</td>
<td>Existing livestock use would remain at 1,513 AUMs. There would be no impact on livestock grazing.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area’s recreation use level would remain at the current level of approximately 500 visitor days per year.</td>
<td>The area’s recreation use level would remain at the current level of approximately 500 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $24,000.</td>
<td>Annual local personal income would remain at approximately $24,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Wild Horse Basin WSA (OR-3-77B)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals (gold, silver, mercury)</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Optical Calcite</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td>Perlite</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Wild Horse Basin WSA (OR-3-77B)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot in WSA</th>
<th>Current Actual Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Corrals¹</td>
<td>5,960</td>
<td>3/1-2/28</td>
<td>9</td>
<td>1,513</td>
</tr>
</tbody>
</table>

¹Board Corrals grazing allotment was created from the Mahogany Allotment in 1982.
Table 5. Effects of Alternatives on Local Personal Income, Wild Horse Basin WSA (OR-3-77B) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>+1</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Metallic Mines</td>
<td>$</td>
<td>0</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private

U.S. Department of the Interior
Bureau of Land Management
Vale District

Wild Horse Basin WSA
OR-3-77B

LAND OWNERSHIP

MAP 2

325
U.S. Department of the Interior
Bureau of Land Management
Vale District

Wild Horse Basin WSA
OR-3-77B

SPECIAL FEATURES

MAP 3
Wild Horse Basin WSA, OR-3-77B. Central portion looking southwest across Wild Horse Basin (Dry Creek Buttes WSA, OR-3-56, is in the background across Owyhee Reservoir). Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Wild Horse Basin WSA, OR-3-77B. Northwestern portion of WSA looking north across plateau above Indian Creek. Within area recommended nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Lower Owyhee Canyon Wilderness Study Area (OR-3-110)

1. Introduction

General Description of the Study Area

The Lower Owyhee Canyon Wilderness Study Area (WSA) is located in Malheur County approximately 4 miles northwest of Rome, Oregon. Highway 95 lies 5 miles south of the WSA (see Map 1).

The WSA contains 75,700 acres of public land which includes 3,385 acres of split-estate lands. In addition, 1,020 acres of private land are located within the boundaries of the WSA (see Map 2).

The boundaries of the WSA are formed by gravel roads, private property and a crested wheatgrass seeding. The study area is approximately 24 miles long north to south and is as wide as 9 miles east to west in the northern portion. Six dead-end, gravel roads totaling 7 miles enter the WSA, forming part of the boundary. One enters Chalk Basin and another provides access to Sand Springs, both along the west-central boundary; another extends west from The Hole In The Ground Ranch in the northeast corner of the WSA, and three extend into the WSA along the east-central boundary. Two of these are on the plateau above the canyon and one drops down into the canyon at Bogus Creek to provide access to several parcels of private inholdings.

The Owyhee River Canyon is the central feature of this WSA. Along its 32-mile course through the study area, the canyon varies in width from 0.25 mile to several miles, and varies in depth from 800 to 1,000 feet. The sheer canyon walls recede near Ryegrass Creek, The Hole in the Ground, and Mud Creek. The topography of the tributaries also varies from canyon-like to gently rolling slopes. Bogus Creek is spring fed and provides the only perennial water other than the Owyhee River. The ephemeral streams are relatively short, ranging in length from 0.75 to 4.75 miles. There is a diversion dam on the river near the north boundary of the WSA at The Hole in the Ground.

Lambert Rocks and Chalk Basin, which narrow the canyon near Ryegrass Creek, are highly scenic because their white appearance provides a contrast to the surrounding country.

Above the canyon rim, the plateau gently slopes upward towards the boundary of the WSA. The plateau has several playas that contain late winter and early spring water. Elevations range from 4,639 feet near the north boundary to 2,860 feet in the canyon bottoms near the south border.

The plateaus are easily accessible on foot. The slopes of the canyons are inaccessible except where drainages cut through the rimrock, which varies in height from tens of feet to hundreds of feet. The canyon slopes are covered with large boulders.

Sagebrush and grasses are the dominant plants of the WSA. Sedges, rushes, willow and hackberry occur in the riparian zones.

Interrelationships

The WSA is located within the Oregon Department of Fish and Wildlife's (ODFW) Owyhee Wildlife Unit which contains 3,026-square-miles of land area. The WSA supports a yearlong population of approximately 45 California bighorn sheep which are a Federal Candidate for listing under the Endangered Species Act. The state management goal for bighorns is to restore them into as much suitable unoccupied habitat as possible for the next 10 to 15 years. A yearlong population of approximately 500 mule deer and a winter herd of 250 antelope occupy the unit. ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. Nongame species include a wide variety and high density of raptors, including the northern
bald eagle, which is Federally listed as a Threatened species in Oregon. The ODFW management goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels.

The proposed action for this WSA conforms with ODFW management goals for game and nongame species.

Adjacent to the Lower Owyhee Canyon WSA is the Saddle Butte WSA (OR-3-111) on the west, the Cedar Mountain WSA (3-47) on the north, and the Owyhee Breaks WSA (3-59) on the east. All the adjoining WSAs are separated by roads.

The river corridor in the WSA is included in the Owyhee River Area of Critical Environmental Concern (ACEC) (see Map 3). Special management of the ACEC includes the following:

• maintaining the current ORV closure on 700 acres and limiting ORV use in the balance of the ACEC to designated roads and trails;

• erecting barriers and signs to deter ORV use and protect the fragile habitat;

• continuing river patrols during high use to monitor and prevent over use which may damage sensitive areas and

• conducting studies of river carrying capacity and then regulating river use to prevent damage to sensitive plants, fish and wildlife habitat.

The portion of the Owyhee River flowing through the WSA is part of a 50-mile segment of the river that has been designated a wild river component of the National Wild and Scenic Rivers System. The Federal designation withdraws from mineral location and leasing all non-split-estate public lands within 0.25 mile on each side of the river (9,360 acres within the WSA). Most of this stretch of river (all of it within the WSA) is also an Oregon State Scenic Waterway. The state designation provides some state control over private land use changes within 0.25 mile of the stream, which affects the private lands inside the WSA. Neither Federal nor State designation restricts mineral development of the 120 acres of split-estate lands within the river corridor.

Most of the WSA is in the Sand Springs Wild Horse Herd Management Area (HMA). Management objectives call for between 100 and 200 wild horses in the HMA. ODFW conducts an annual census of the herd by aerial surveillance and approximately once every four years the excess portion of the herd is gathered by riders on horseback and helicopter. A trap site is located to the west of the WSA boundary. Since management of wild horses would continue in a similar manner under each alternative, this subject is not discussed further.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

• impact on the area’s wilderness values, including special features like California bighorn sheep and northern bald eagle,
• impact on 7 miles of dead-end roads entering the WSA,
• impact on energy and mineral exploration and development,
• impact on split-estate lands,
• impact on development of a potential north-south utility corridor,
• impact on livestock grazing use levels and management, and
• impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation.
These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness
- partial wilderness (proposed action)
- no wilderness/no action

An alternative that would combine this WSA with adjacent WSAs by closing the roads between them is not analyzed because the roads are needed to provide access for management of lands in the area.

All Wilderness

Under the all wilderness alternative, all 75,700 acres of public land within the WSA would be recommended suitable as wilderness (see Map 2). For purposes of analysis, it is assumed that private land and mineral estate of the split-estate parcels would not be acquired and the six dead-end roads would remain open to vehicle use.

Energy and Mineral Development Actions

Wilderness designation would close 62,955 acres of public land within the WSA to mineral entry (an additional 9,360 acres of public lands along the Owyhee River, which are part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action). A total of 3,385 acres of split-estate land would be open to mineral exploration and development. In addition, 1,020 acres of private inholdings would be open to mineral exploration and development at the landowners’ discretion.

Exploration for energy resources would be prohibited by wilderness designation on 62,955 acres (an additional 9,360 acres are already closed due to Wild and Scenic River designation), including geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA; oil and gas. Due to a lack of direct evidence indicating favorability and an absence of confirmed petroleum and/or geothermal resource-bearing formations, only casual non-surface disturbing exploration with no development is postulated for oil and gas, and geothermal resources on the 3,385 acres of split-estate and 1,020 acres of private land.

Exploration for mineral resources would be prohibited by wilderness designation on 62,955 acres (an additional 9,360 acres are already closed due to Wild and Scenic River designation), including gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA (refer to Map 6 for specific locations); zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA; and bentonite and fluorite.

Exploration for gold/silver/mercury is postulated to occur on the 3,385 acres of split-estate and 1,020 acres of private lands. This effort will most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to seven core holes on two parcels of split-estate land in the northern portion of the WSA (six holes in the northwest and one in the northeast) and may disturb two acres, including 1+ mile of new road construction.

Continued development of decorative stone is postulated to occur on three existing placer mining claims in Chalk Basin, in the west-central portion of the WSA. This effort would consist of surface quarrying and removal of the ornamental tuffaceous sedimentary rock and would disturb approximately five acres. As there is an existing road to the claims, no new road construction is postulated.

Total surface disturbance resulting from energy and mineral exploration and development is postulated to be seven acres, including 1 mile of new road construction and continued development of 1 mine.

Utility Corridor Routing and Development

The proposed north-south corridor, which would pass through the west-central portion of this WSA, would be shifted 1 mile to the west into the Saddle Butte WSA (OR-3-111). (See the Saddle Butte Appendix for utility corridor actions if that WSA is designated wilderness.)

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in
which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 7,106 AUMs within the portions of seven allotments in the WSA. The seasons of use would remain as identified in Table 4 for the seven allotments. Vehicle use for livestock management on 28.5 miles of ways would be precluded. Management of livestock and maintenance of 6 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain nine reservoirs, 0.25 mile of pipeline and one water trough.

Recreation Management Actions

A total of 75,000 acres (excluding the dead-end roads) would be closed to motorized vehicle use by wilderness designation. A total of 700 acres are already closed to vehicles due to ACEC designation. On the remainder of the area, vehicle use is limited by vehicle designation to the 7 miles of existing roads and 28.5 miles of existing ways. Current recreational use is mainly associated with boating activities on the Owyhee River and is estimated to be 6,000 visitor days per year. The number of users varies with river discharge: during years of high discharge, use is high and the season is extended, while in years of low discharge, use is low and the season is shortened. Patterns of use will continue to be monitored to determine long-term trends and prevent adverse impacts to wildlife and other resources.

Enhanced Wilderness

Under the enhanced wilderness alternative, 75,700 acres of public land would be recommended suitable for wilderness (see Map 4). The mineral estate on 3,385 acres of split-estate land and 13 parcels totaling 1,240 acres of private inholdings would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of these parcels, the total area recommended suitable under this alternative would be 76,940 acres. The six dead-end roads totaling 7 miles in length, and 28.5 miles of ways would be closed (see Map 4). (The road closure to the private inholding is proposed only if acquisition is successful.)

Energy and Mineral Development Actions

Wilderness designation would close 67,580 acres of public land within the WSA to mineral entry (an additional 9,360 acres of public lands along the Owyhee River, which are part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action). This assumes acquisition would be successful for 3,385 acres of mineral estate acquired on the split-estate land and 1,240 acres of private land, which would then also be closed to mineral entry.

Exploration for energy resources would be prohibited by wilderness designation on 67,580 acres (9,360 acres are already closed due to Wild and Scenic River designation), including geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA, and oil and gas.

Exploration for mineral resources would be prohibited by wilderness designation on 67,580 acres (9,360 acres are already closed due to Wild and Scenic River designation), including gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA (refer to Map 6 for specific locations); zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA; and bentonite and fluorite.

Continued development of decorative stone is postulated to occur on 220 acres on three mining claims in Chalk Basin. This effort would consist of surface quarrying and removal of the ornamental tuffaceous sedimentary rock and would disturb approximately five acres. There is an existing road to the claims, so no new road construction is postulated.

Total surface disturbance resulting from energy and mineral exploration and development is postulated to be five acres, including continued development of one decorative-stone mine. No new road construction is postulated.

Utility Corridor Routing

The proposed north-south corridor, which would pass through the west-central portion of this WSA, would be shifted 1 mile to the west into the Saddle Butte
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 7,106 AUMs in the portions of seven allotments in the WSA. The season of use would remain as identified in Table 4 for the seven allotments. Vehicle use for day-to-day livestock management on 28.5 miles of ways and 7 miles of roads would be precluded. Management of livestock and maintenance of 6 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain nine reservoirs, 0.25 mile of pipeline and one water trough.

Recreation Management Actions

A total of 76,240 acres would be closed to motorized vehicle use by wilderness designation, assuming acquisition of 1,240 acres of private lands. A total of 700 acres are already closed to vehicles due to ACEC designation. Presently vehicle use is limited by vehicle designation to the 7 miles of existing roads and 28.5 miles of existing ways. Current recreational use is mainly associated with boating activities on the Owyhee River and is estimated to be 6,000 visitor days per year. The number of users varies with river discharge: during years of high discharge, use is high and the season is extended, while in years of low discharge, use is low and the season is shortened. Patterns of use will continue to be monitored to determine long-term trends and prevent adverse impacts to wildlife and other resources.

Partial Wilderness (Proposed Action)

Under the partial wilderness alternative, 64,225 acres of public land would be recommended suitable as wilderness and 11,475 acres of public land would be recommended nonsuitable as wilderness (see Map 5). Twelve parcels of private land totaling 1,200 acres and five parcels of mineral estate totaling 2,610 acres would be acquired, if the owners are willing, through purchase or exchange. One 40-acre parcel of private land is located in the nonsuitable area and would not be acquired. With private land acquisitions, the total area recommended suitable under this alternative would be 65,425 acres.

The area recommended nonsuitable consists of three areas ranging in size from 2,160 to 8,320 acres. The recommended boundary for the partial alternative would consist of gravel roads, private property, legal subdivisions, a way, topographic features and the edge of a grass seeding. The northwestern portion and the southern tip of the WSA that are recommended as nonsuitable are separated from the suitable portion by legal subdivisions. The western-central portion of the WSA is separated from the suitable portion by a way.

Three dead-end roads totaling 4 miles along the middle of the eastern boundary would be closed, assuming successful acquisition of the private property at the end of the road. In addition, a one-mile road into Chalk Basin would be closed, with limited continued access to the three existing mining claims by the mining claimants.

Energy and Mineral Development Actions

Wilderness designation would close 56,065 acres of public land within the WSA to mineral entry (an additional 9,360 acres of public land along the Owyhee River, which are part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action). This assumes acquisition would be successful for 2,610 acres of mineral rights acquired from split-estate lands and 1,200 acres of private land, which would then also be closed to mineral entry. A total of 11,475 acres of public land recommended nonsuitable for wilderness would be open to mineral exploration and development.
Utility Corridor Development Actions

The proposed north-south corridor, which would pass through the west-central portion of this WSA, would be shifted 1 mile to the west into the Saddle Butte WSA (OR-3-111). (See the Saddle Butte Appendix for utility corridor actions if that WSA is designated wilderness.)

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 7,106 AUMs in the portions of seven allotments in the WSA. The season of use would remain as identified in Table 4 for the seven allotments. Vehicle use for day-to-day livestock management on 19.5 miles of ways and 5 miles of road would be precluded. Management of livestock and maintenance of 6 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain nine reservoirs, 0.25 mile of pipeline and one water trough.

In the area designated nonsuitable for wilderness, 9 miles of ways and a 2-mile road would remain open for use by livestock operators. These ways and the road are used 20 to 25 times per year to check livestock, spread salt and to maintain facilities.

Recreation Management Actions

In the suitable portion, a total of 64,725 acres would be closed to motorized vehicle use by wilderness designation, assuming acquisition of 1,200 acres of private lands. A total of 700 acres are already closed to vehicles due to ACEC designation. Along the
eastern boundary, three dead-end roads totaling 4 miles would be closed to motorized vehicle use and allowed to revegetate. In addition, a one-mile, dead-end road into Chalk Basin would be closed to recreational vehicle use. A total of 19.5 miles of ways would be closed to motorized vehicles. Current recreational use is mainly associated with boating activities on the Owyhee River and is estimated to be 6,000 visitor days per year. The number of users varies with river discharge: during years of high discharge, use is high and extends later in the season, while in years of low discharge, use is lower and the season is shortened. Patterns of use will continue to be monitored to determine long-term trends and prevent adverse impacts to wildlife and other resources.

The 11,475 acres recommended nonsuitable as wilderness would remain accessible to vehicles via the existing road and ways. A two-mile dead-end road and 9 miles of ways would remain open to motorized vehicles.

**No Wilderness/No Action**

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

**Energy and Mineral Development Actions**

A total of 66,340 acres in the WSA would be open to mineral exploration and development. A total of 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, would remain closed to mineral entry.

Exploration for geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA, is postulated to occur. This effort would most likely consist of geologic mapping and geophysical surveys (gravity, resistivity, magneto telluric, etc.), followed by the drilling of a 4,000-foot deep geothermal gradient hole. The resulting surface disturbance is postulated to be 1.4 acres, including 0.7 miles of new road construction. The discovery of thermal waters with sufficiently high temperatures for electrical generation is not expected. Since the WSA is isolated from residences and industry, no development of the geothermal resource as a source of direct heat (e.g., space heaters) is projected.

Due to a lack of direct evidence indicating favorability, an absence of petroleum resource-bearing formations and an absence of existing mineral leases, only casual non-surface disturbing exploration is postulated for oil and gas.

Exploration for gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA, is postulated to occur. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to 106 drill holes in those areas depicted on Map 6 as moderate potential for the occurrence of gold, silver and mercury. The resulting surface disturbance is estimated to be 34 acres, including 23 miles of new road construction. The discovery of an economic deposit in the east-central portion of the WSA is postulated and it will be developed. The operation would involve 250 acres of surface disturbance for an open-pit gold/silver mine and milling/leaching complex, including 1 mile of upgraded road.

Exploration for zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA is postulated to occur. This effort would most likely consist of surface examination and sampling, followed by the digging of one bulk sample trench/pit. The resulting surface disturbance is postulated to be 0.25 acre, including 0.1 mile of new road construction. The discovery of an economically mineable zeolite deposit is not expected and no development is projected.

Continued development of decorative stone is postulated to occur on 220 acres on three placer mining claims in Chalk Basin (refer to Map 6). This effort would consist of surface quarrying and removal of the ornamental tuffaceous sedimentary rock and would result in approximately 5 acres of surface disturbance. As there is an existing road to the claims, no new road construction is postulated.

Total surface disturbance resulting from energy and mineral exploration/development is postulated to be approximately 290 acres, including 24.8 miles of new and upgraded road construction and development of two mines.

**Utility Corridor Routing and Development**

The proposed utility corridor would be designated as planned and would be available to route a proposed 500-kV power transmission line through the west-central portion of this WSA for a distance of 4.5 miles.
Development of the utility corridor would involve the construction of 4.5 miles of access road.

**Wildlife Habitat Management Actions**

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

**Livestock Management Actions**

An additional 10,123 AUMs of livestock forage currently available but unallocated would be allocated to livestock. This increase involves the entire WSA plus the portions of the pastures extending outside the WSA, since livestock could drift throughout the pastures. The increase would be approximately 1,624 AUMs on lands in the WSA, with the remainder being in portions of pastures extending outside the WSA.

Two reservoirs would be built and three springs would be developed to improve livestock distribution.

Two miles of fence would be constructed to improve livestock distribution and management.

Vehicle use for livestock management and maintenance of the 6 miles of fence, a cow camp, nine reservoirs, 0.25 mile of pipeline and one water trough would continue on 28.5 miles of ways and 7 miles of roads. The ways are used 20 to 25 times per year to check livestock, spread salt, and to maintain facilities. The roads are used 70 to 75 times per year for the same purposes as well as to supply the cow camp located at the end of a dead-end road near Sand Springs in the west-central portion of the WSA.

**Recreation Management Actions**

Vehicle use would continue to be restricted to the existing 7 miles of roads and 28.5 miles of ways. Current recreational use is mainly associated with boating activities on the Owyhee River and is estimated to be 6,000 visitor days per year. The number of users varies with river discharge: during years of high discharge, use is high and extends later in the season, while in years of low discharge, use is lower and the season is shortened. Patterns of use will continue to be monitored to determine long-term trends and prevent adverse impacts to wildlife and other resources.

**Summary**

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

**3. Affected Environment**

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

**Wilderness Values**

**Naturalness**

The Lower Owyhee Canyon WSA appears to be in an essentially natural condition (96 percent of the area in the WSA is uninfluenced by unnatural features). From the river or the plateaus overlooking the river an expansive panorama of magnificent wind and water sculptured rock formations and palisades can be seen.

The rugged terrain has limited the number of unnatural features. Most of these features are associated with ranching operations. Some 33 unnatural features influence about four percent of the WSA. These features include seven fences totaling 6 miles, nine reservoirs, a water tower, a fenced enclosure, a cow camp and corral, an old diversion dam, an abandoned canal ditch, and 12 ways totaling 28.5 miles.

Outside sights and sounds affecting naturalness in the WSA include a seeding, 6 miles of fences, water towers, nine reservoirs, corrals, ranch buildings and mines. The outside sights and sounds are both near and distant, but do not diminish the WSA's naturalness to a substantial degree.
Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The large size and abundant topographic screening of the WSA provides outstanding opportunities for solitude. The main canyon and numerous tributary drainages allow visitor movement to go relatively unnoticed.

Topographic screening is outstanding in the canyonlands because they are deeply incised. Screening is limited on the sagebrush plateau because of the low vegetation, shallow depressions and low rolling hills and ridges.

The main canyon has the potential to concentrate visitors into one major corridor of use (the Owyhee River) and decrease opportunities for solitude there. This is offset, however, by the length and meandering character of the canyon and the presence of several tributaries which tend to disperse hikers and boaters. Furthermore, long stretches of river provide time and distance for visitors to adjust their travel rates and campsite locations to increase solitude while floating or hiking the river.

The area offers outstanding opportunities for primitive types of recreation, including whitewater boating, day hiking, camping, watersports, fishing, sightseeing, hunting, photography and birdwatching.

Whitewater boating on the Owyhee River is considered to be the best in eastern Oregon and ranks with the best in the northwest United States. Floatboating on the portion of the Owyhee River within the WSA is possible during the spring. The steep, rugged topography of the Owyhee Canyon and its short tributaries restricts most foot travel to the canyon bottoms. Hiking the main canyon is possible for short distances but longer treks are blocked by many deep pools and sheer cliffs.

Attractive campsites are numerous and fairly well-spaced along the river, but few can be found elsewhere in the WSA.

The Owyhee River provides good opportunities for fishing, mainly for channel catfish and small-mouth bass.

Sightseeing and photographic opportunities are outstanding for enthusiasts willing to confront the difficulties of reaching and travelling through the isolated canyon of the WSA. Attractions include abundant and diverse wildlife, spectacular geologic formations and dramatic stretches of whitewater. Birdwatching opportunities are also excellent. More than 150 passerine (song bird) species have been observed and waterfowl, shorebirds, raptors and upland game birds are also common. Mule deer, geese, ducks, chukar and valley quail provide good to excellent hunting opportunities, especially along the river. Poor access is the biggest deterrent to hunting.

Special Features

The Lower Owyhee Canyon WSA is characterized by contrasting topography between the Owyhee River, associated canyons and breaks, and the sagebrush plateaus overlooking the canyons. Complex geologic formations have been uncovered by erosion, leaving numerous layers of strata exposed and readily observable for scientific study.

Riparian vegetation is concentrated in narrow bands and isolated pockets along the river. Hackberry, an unusual tree species for a desert ecosystem, occurs in clumps in the riparian zone.

The Owyhee River Canyon contrasts with the surrounding arid environment and offers outstanding opportunities to study aquatic and riparian habitats in a desert area.

The canyon and breaks provide habitat for California bighorn sheep (see Map 7) and several species of raptors, including the northern bald eagle, and numerous small mammals.

There is good evidence that a large number of archeological sites are concentrated along the river. A 1976 inventory in the Owyhee River Canyon from Crooked Creek to the upper end of the Owyhee Reservoir, plus earlier studies, indicate that the Owyhee Canyon and the adjacent plateaus have been used by humans for the past 12,000 years. The inventories identified 102 prehistoric and historic sites representing a wide diversity of types and time periods (e.g. prehistoric seasonal camps, shelters, petroglyphs, manufacturing and single activity areas, and historic homesteads, ranches, townsites and water wheels). Dirty Shame Rockshelter on Antelope Creek was excavated by a team from the University of Oregon in 1973 and provided a 9,000-year record of previously unknown cultural adaptation.

Some cultural resource sites in the WSA have been vandalized. Most of the vandalism has been done by people who have driven into the area on ways that provide access to the canyon.
Diversity of the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and its potential natural vegetation is sagebrush steppe and saltbush-greasewood. Of the plant communities listed in the Owyhee Uplands sections of the Oregon Natural Heritage Plan, the Lower Owyhee Canyon WSA contains two plant associations: big sagebrush/bluebunch wheatgrass, and alkaline vegetation mosaic with representative communities including greasewood, shadscale, saltgrass and spiny hopsage.

Boise, Idaho, is the only standard metropolitan statistical area with a population over 100,000 within five hours’ driving time of the WSA.

Energy and Mineral Development

The energy and mineral resources of the Lower Owyhee Canyon WSA were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment and rock chip sampling by the Oregon Department of Geology and Mineral Industries (DOGAMI) under BLM contract. This geochemical survey became the primary basis for the metallic minerals classification of this evaluation. The DOGAMI report is entitled “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” Using DOGAMI report and a heavy mineral analysis conducted by Barringer Resources, Inc., the study area was reevaluated by BLM personnel.

The area has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the Energy and Mineral classification for the WSA. Map 6 shows where energy and mineral resources have a moderate or high potential for occurrence.

Surface geologic material found in the WSA consists largely of Tertiary and Quaternary lacustrine and fluvial sediments, interbedded with, and capped by, Tertiary and Quaternary flows. Other exposed rocks consist of Quaternary landslide debris along the Owyhee River gorge and Tertiary rhyolitic/dacitic vent rocks (flows, flow breccias, plugs, etc.). No pre-Tertiary rocks are known to be exposed in the WSA and it is not known what underlies the Cenozoic volcanic cover. However, as the WSA is situated within the western margins of late Paleozoic and Triassic depositional basins, both Mesozoic and Paleozoic marine sediments may occur at depth.

Energy Resources

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas, due to the inferred presence of buried marine sediments. However, there has been no deep drilling in the area that has penetrated the Cenozoic volcanic cover.

Based on direct evidence (the presence of a hot spring near the eastern shore of the Owyhee River) and the probable presence of shallow (3,000 feet deep) thermal waters hot enough for direct heat use, approximately 100 acres in the central portion of the WSA is considered to have a moderate potential for the occurrence of geothermal resources (refer to Map 6). Based on indirect evidence (relatively youthful volcanism and above normal heat flow), the remainder of the WSA is also considered to have a moderate potential for the occurrence of geothermal resources.

As of October 16, 1987, there were no energy leases in the WSA.

Mineral Resources

No confirmed mineral deposits have been found in the WSA. However, gold silver and mercury are known to occur in portions of the WSA. Consequently, based on this direct evidence, approximately 23,150 acres, contained in ten separate areas scattered throughout the WSA, are considered to have a moderate potential for the occurrence of these minerals. Silver and mercury are strategic and critical minerals. The locations of the ten areas of moderate potential are shown on Map 6.

Based on direct evidence (the presence of zeolite-bearing tuffaceous lake sediments - the “Rome zeolite bed”), approximately 320 acres in the southwestern tip of the WSA are considered to have a moderate potential for the occurrence of zeolites. The remainder of the WSA is also considered to have a moderate potential for the occurrence of zeolites; however, this is based on indirect evidence (the presence of favorable, tuffaceous lake sediment rock throughout the WSA) and the inferred presence of zeolites.
Based on the same indirect evidence, all of the WSA is considered to have a moderate potential for the occurrence of bentonite and fluorite.

As of October 16, 1987, there were three placer mining claims located in a decorative rock quarry at Chalk Basin, totaling approximately 220 acres in size. Twenty acres of one claim are within the cherry stem defined by the quarry and the road leading to it (the acreage is technically outside the WSA). Within the 20 acres are three acres that are actively being developed. The remaining two claims are totally within WSA.

Utility Corridors

The Bonneville Power Administration (BPA) has under long-term consideration construction of a 500-kV power transmission line through a potential north-south corridor which would pass through the west-central portion of this WSA. Most of the potential corridor is located outside the WSA with the exception of 4.5 miles just inside the extreme west-central boundary.

Vegetation

Predominant vegetation in the WSA is big sagebrush with an understory of grasses. However, diversity of land forms and soils have resulted in a wide variety of ecological sites. Riparian vegetation occurs along the Owyhee River but is limited by steep canyon walls and high water flows which flush out vegetation and debris.

On the plateaus above the Owyhee Canyon the major plant community is Wyoming big sagebrush/bluebunch wheatgrass. Three phases of this community occur, as various grass species co-dominate with the bluebunch wheatgrass. These phases include Sandberg’s bluegrass, Thurber’s needlegrass, or bottlebrush squirreltail. Wildfires have burned extensive areas on both sides of the Owyhee River in the past few decades. The sagebrush component of these communities is now lacking, with a mix of grasses, herbaceous perennials, and annual grasses such as cheatgrass dominating the burned-over sites. Sagebrush is expected to return to the communities over time. A small portion of the WSA to the southeast contains a shadscale/Indian ricegrass community. Overall, the seral stage of all communities is early to mid-seral, with pockets of late seral to the potential natural community occurring on sites inaccessible to livestock.

Chalk Basin contains unique ecological sites with barren soils and sparse vegetative communities. One rare species, Astragalus sterilis or sterile milkvetch, is known to occur in the area and is a Candidate species for Federal listing as threatened or endangered by the U.S. Fish and Wildlife Service.

Where soils have developed or collected on the steep walls of the Owyhee River Canyon, the potential natural community is Wyoming big sagebrush/bluebunch wheatgrass, which is in pristine condition due to its inaccessibility to livestock. Large slides of talus limit other vegetative growth to isolated pockets of giant wildrye. Along the river, riparian species include hackberry, chokecherry, willows, rushes and sedges. An introduced grass, reed canary grass, is gaining a toehold in patches along the river’s edge.

Wildlife

Rock cliffs in the canyon environment provide excellent nesting habitat for a wide variety and high density of raptor species including golden eagles and prairie falcons. Twenty to thirty northern bald eagles, which are Candidate species for Federal listing as threatened or endangered, use the Owyhee River and reservoir for a wintering area. Other interesting nongame or furbearing species present include river otter, beaver, raccoon, snakes and lizards.

California bighorn sheep have been reintroduced into the Owyhee canyon in the vicinity of Iron Point. The current population is about 45 and ODFW currently manages the herd to maximize animal numbers, so no hunter harvest is authorized. A year-round population of approximately 500 mule deer occur within the WSA. During the summer, the number of antelope using the WSA is relatively small (approximately 50 individuals). However in winter, the population of antelope inside the WSA increases substantially to about 250 head.

The Owyhee River is a perennial stream which supports a variety of fish. Five species of gamefish are found within the WSA including channel catfish, black bullhead, yellow perch, whitefish and small mouth bass. Bass populations have been increasing in recent years but catfish are still the most abundant species. Rainbow trout have been planted in the river but have not survived because of scarce spawning gravel, warm water and competition from nongame species including carp, squawfish and suckers.

Large numbers of waterfowl including mallards and Canada geese winter within the WSA. Nearly 1,000 Canada geese have been counted in the vicinity.
during aerial inventories. Chukars are also found in high numbers along the river.

Watershed

The Owyhee River and its canyon is the central feature of the area, flowing for 32.5 miles through the WSA at an average gradient of approximately 0.50 percent. Average discharge ranges from 100 cubic feet per second (cfs) in late fall to over 3,000 cfs during the spring snowmelt period, with peak discharges in excess of 10,000 cfs. Average annual precipitation is approximately 15 inches, with most falling as snow at higher elevations. Due to the rough, rocky terrain associated with the steep, narrow canyon, livestock access into the Owyhee River floodplain is limited. Therefore, influences from livestock within the canyon are minimal. However, potential is considered to be low for improvement in riparian vegetation due to the high spring flows within the confines of the canyon. Tributaries to the Owyhee River are predominantly ephemeral and intermittent creeks that flow for only a few months in the spring. Some of the major intermittent and ephemeral creeks are Granite Creek, Ryegrass Creek, Mud Creek, and Fort Creek. Bogus Creek is the only perennial tributary in the WSA. Water quality of Bogus Creek and the Owyhee River, within the WSA, are generally good.

Livestock Grazing

Portions of seven grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 6 miles of fence, nine reservoirs, 0.25 miles of pipeline, one water trough and a cow camp.

Livestock operators use motor vehicles on ways approximately 20 to 25 times per year for fence and reservoir inspection and maintenance, to check on livestock and spread salt. The roads are used 70 to 75 times per year for the same purposes as well as to supply a cow camp. Due to topography and the lack of vehicular access to parts of the WSA, some of the livestock management is accomplished on horseback.

Recreation Use

Outstanding recreation in the canyon includes float-boating, hiking, photography, nature study, fishing, hunting and camping. Most of these activities occur in conjunction with floatboating. Floatboating occurs during the spring and early summer in average runoff years. In years with above average runoff, the season may extend into the mid-summer. Float-boaters using very small craft may be able to extend the season. Most visitors float the river in inflatable rafts. Kayaks are the second most popular craft and a few driftboats usually float each year. The usual put-in for this river section is the BLM launch site at Rome. There are several take-out points, all outside the WSA. Most fishing occurs during the summer and fall for channel catfish and small-mouth bass. Some fishing occurs from rafts and drift boats all along the river during float season, but at flood stage the turbid water severely limits opportunities for fishing.

Vehicle-oriented recreation in the WSA is limited to the few areas with roads and ways. The most popular area is along the river at the end of Bogus Road.

Boating campsites receive a considerable number of visitors during the spring, but they receive very little use the rest of the year. The Owyhee River is the main thoroughfare of the WSA during the boating season.

Presently, there seems to be little deterioration of the wild character of the Lower Owyhee due to floatboaters. However, problems may develop in the future if use continues to increase as it has in the recent past. In part, this growth parallels the general increase in popularity of whitewater sports. As the more popular rivers become overcrowded and as managing agencies respond with increased restrictions on use, boaters look for less crowded rivers with fewer restrictions such as the Owyhee.

The rugged topography, remote location, general lack of roads and trails, climatic hazards, and the high quality of whitewater combine to make the Lower Owyhee Canyon WSA one of the most challenging desert recreation areas in the Intermountain West.

Local Personal Income

Livestock use at the current level of 7,106 AUMs and recreation use totaling 6,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to
approximately $85,272 for livestock grazing and $72,000 related to recreation use of the WSA, for an overall total of $157,272. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 75,700 acres. Recommended nonsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

All 75,700 acres of the WSA would be added to the National Wilderness Preservation System (NWPS). Wilderness values on 75,700 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including undisturbed riparian areas, habitat for bighorn sheep and raptors, cultural sites, outstanding scenery, and undeveloped plateaus and canyons would also be protected.

Naturalness

The naturalness of the area's undisturbed canyons and extensive plateaus would be enhanced by prohibiting motorized vehicles on the ways. Closure of 28.5 miles of ways would influence approximately 1,920 acres (about 2.5 percent of the WSA). Within three to five years the ways would revegetate, making them unnoticeable.

Solitude

Opportunities for solitude provided by the area's large size, many miles of winding canyons and limited vehicle access would be further improved through the elimination of motorized use on the 28.5 miles of ways. Vehicles would be limited to the boundary roads and the six dead-end roads totaling 7 miles in length. This reduction in vehicular access would provide a large core area for people to hike into and experience solitude with no disturbance from vehicle use.

Primitive and Unconfined Recreation

Closure of the 28.5 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography and sightseeing experiences would improve with the removal of vehicles and the rehabilitation of the ways. A more natural, primitive setting would be provided.

Special Features

Eliminating motorized vehicle use on the 28.5 miles of ways would reduce impacts to special features. These impacts include minor seasonal disturbance of bighorn sheep and raptors, impairment of scenic vistas, and some damage to cultural sites traversed by roads and accessible to vandals.

Conclusion: Wilderness designation of the entire 75,700 acres within the Lower Owyhee Canyon WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 62,955 acres of public land within the WSA to mineral entry (an additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, is already closed to mineral entry by Congressional action). A total of 3,385 acres of split-estate lands would be open to mineral exploration/development and 1,020 acres of private inholdings would be open to mineral exploration/development at the landowners' discretion.

Energy Development

Projected exploration for energy resources would be precluded on 62,955 acres (an additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, is already closed to mineral entry by Congressional action), including geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-
central portion of the WSA, and oil and gas. Due to a lack of direct evidence indicating favorability and an absence of confirmed petroleum and/or geothermal resource-bearing formations, only casual non-surface disturbing exploration with no development is postulated for oil and gas, and geothermal resources on 3,385 acres of split estate and 1,020 acres of private inholdings.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Projected exploration for mineral resources would be precluded on 62,955 acres (an additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, is already closed to mineral entry by Congressional action) including gold, silver and mercury, which have moderate potentials for occurrence on 23,150 acres scattered throughout the WSA (refer to Map 6 for the locations); zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA; and bentonite and fluorspar. As a result of wilderness designation, the projected development of one open-pit gold/silver mine would be precluded.

The drilling of seven gold/silver/mercury core holes on split-estate lands is postulated to occur. The discovery of an economic mineral deposit is not expected and no development is projected. In addition, continued production of decorative stone from three placer mining claims in Chalk Basin would occur as projected.

**Conclusion:** Wilderness designation would result in foregone production from one open pit gold/silver mine. Decorative stone production would continue from three existing placer mining claims.

**Impacts on Utility Corridor Routing and Development**

The potential north-south utility corridor would be rerouted 1 mile to the west outside of the WSA. This action would not increase the length of the proposed 500-kv powerline, but it would shift the location into the Saddle Butte WSA (OR-3-111). (See the Saddle Butte WSA appendix for a discussion of impacts on the corridor if that WSA is designated wilderness.)

**Conclusion:** The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.

**Impacts on Vegetation**

Little or no change to vegetative composition or ecological status, as described in the vegetation section in the Affected Environment, would take place on most of the WSA.

Closure of 28.5 miles of ways to motorized vehicles, would allow approximately 30 acres to revegetate in three to five years.

**Conclusion:** The 28.5 miles of closed ways would revegetate. Overall, little or no change would take place to vegetative composition or ecological status on most of the WSA.

**Impacts on Wildlife**

Wildlife habitat for approximately 500 mule deer, 250 wintering antelope, 45 California bighorn sheep, northern bald eagles and other game and nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 10,123 AUMs would not be allowed because of its potential impact on wilderness values (e.g. a reduction in residual ground cover and increased soil erosion due to trampling). Surplus forage above the minimum level identified by ODFW as necessary for deer and antelope population goals would be available. Closure of 28.5 mile of ways would reduce minor seasonal vehicle disturbances to antelope on portions of the plateaus and to raptors nesting along the canyon rim.

**Conclusion:** Wildlife habitat and populations would be maintained on 75,700 acres designated wilderness.

**Impacts on Watershed**

The all wilderness alternative would have little impact on the WSA watershed. Closure of 28.5 miles of ways would result in some reduction in erosion as the ways revegetate in three to five years.

**Conclusions:** Watershed condition and water quality would be maintained.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 7,106 AUMs within the portions of the seven allotments in the WSA. Wilderness designation
would preclude the allocation of 10,123 AUMs of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values. Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 28.5 miles of ways would be precluded under wilderness designation. This would result in inconvenience and some additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of nine reservoirs, 0.25 mile of pipeline and one water trough. This periodic infrequent use would involve 4 miles of ways and 3 miles of cross-country travel.

Conclusion: A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 28.5 miles of ways for day-to-day livestock management would be precluded, causing some inconvenience and a slight increase in cost to livestock operators.

Impacts on Recreation Use

The all wilderness alternative would have a relatively minor impact on recreation because the majority of use is confined to float trips on the Owyhee River. Closure of ways would restrict vehicular access to the canyon, thus reducing day hikes and hunting. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would compensate for reduced use by vehicle-oriented hikers and hunters.

Conclusion: The area's recreation use level of 6,000 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at 7,106 AUMs and overall recreation use would remain at 6,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $157,000.

Enhanced Wilderness

Recommended Suitable for Wilderness: 75,700 acres (76,940 if 1,240 acres of private land are acquired)
Recommended Nonsuitable for Wilderness: 0 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would add 76,940 acres to the NWPS, assuming that 1,240 acres of private lands would be acquired as proposed under this alternative. The mineral estate on 3,385 acres of split estate would also be acquired. Seven miles of roads and 28.5 miles of ways would be closed (the 1.5-mile road to the private property at Bogus Creek would only be closed if acquisition is successful). All of the WSA would be designated wilderness, and the wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including undisturbed riparian lands, diverse cultural resources, bighorn sheep and raptor habitat, outstanding scenery and undeveloped plateaus and canyons would also be protected. Acquisition of the mineral estate and private land would prevent projected disturbance from energy and mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The effect on naturalness would be similar to the all wilderness alternative except that the enhanced wilderness alternative also includes the acquisition of 3,385 acres of mineral estate and 1,240 acres of private land (if the owners are willing), and the closure of 7 miles of dead-end roads. The acquisition of the seven parcels (3,385 acres) of mineral estate and the 1,240 acres of private land would preclude impacts from the projected mineral entry and exploration, thus preserving the naturalness of the area. Revegetation of the 7 miles of closed roads would eliminate their unnatural influence on approximately 1,050 acres (about 1.4 percent of the WSA).

Closing the 28.5 miles of ways would allow revegetation and eliminate their influence on approximately 1,920 acres (about 2.5 percent of the WSA), the same as under the all wilderness alternative.

Solitude

The effect on solitude would be similar to the all wilderness alternative except for the additional enhancement of opportunities for solitude provided by
the proposed road closures and acquisitions. Eliminating motorized vehicle use on 7 miles of roads would increase opportunities for solitude. Precluding projected mineral entry and exploration activities on the 3,385 acres of mineral estate and 1,240 acres of private lands would prevent their short-term disruption of solitude.

As under the all wilderness alternative, closing the 28.5 miles of ways would increase the size of the area where wilderness visitors’ solitude would not be disturbed by vehicle use.

**Primitive and Unconfined Recreation**

The same increased opportunities for primitive and unconfined recreation resulting from closure of the ways identified under the all wilderness alternative would occur under this alternative. In addition, acquisition of the 3,385 acres of mineral estate would prevent projected mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on 7 miles of dead-end roads and acquisition of 1,240 acres of private lands would enhance opportunities for primitive and unconfined recreation by allowing the landscape to return to a more natural state through revegetation and control of human activities.

**Special Features**

The impacts to special features would be the same as the all wilderness alternative with the exception of the acquisition of the 3,385 acres of mineral estate, which would prevent projected mineral entry and exploration. The absence of any need for motorized access to these seven parcels would prevent any further scarring and erosion of unique land forms, damage to cultural sites and disruption of bighorn sheep and raptors.

The elimination of vehicle use on 7 miles of dead-end roads and acquisition of 1,240 acres of private lands would decrease impacts to special features by reducing access to the plateaus and Owyhee River ACEC in the central portion of the WSA.

The closure of 28.5 miles of ways would eliminate soil compaction and rutting, disturbance of wildlife and impairment of scenic vistas and cultural sites, the same as under the all wilderness alternative.

**Conclusion:** Wilderness designation of 76,940 acres would protect and enhance existing wilderness values. The closure of 28.5 miles of ways and 7 miles of roads would further preserve wilderness values.

**Impacts on Mineral and Energy Development**

Wilderness designation would close 67,580 acres of public land within the WSA to mineral entry (assuming acquisition of 3,385 acres of mineral rights on split-estate land and 1,240 acres of private land). An additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, is already closed to mineral entry by Congressional action.

**Energy Development**

Projected exploration for energy resources would be precluded by wilderness designation on 67,580 acres (9,360 acres are already withdrawn due to Wild and Scenic River designation), including geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA, and oil and gas. Due to a lack of direct evidence indicating favorability and an absence of confirmed petroleum and/or geothermal resource-bearing formations, only casual, non-surface disturbing exploration with no development is postulated for oil and gas, and geothermal resources, on 3,385 acres of split estate and 1,240 acres of private land.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Projected exploration for mineral resources would be precluded by wilderness designation on 67,580 acres (9,360 acres are already withdrawn due to Wild and Scenic River designation), including gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA (refer to Map 6 for the locations); zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA; and bentonite and fluorite. As the result of wilderness designation, the projected development of one gold/silver open pit mine would be precluded.

Continued production of decorative stone from three placer mining claims in Chalk Basin would occur as projected.

**Conclusion:** Wilderness designation would result in foregone production from one projected open-pit gold/silver mine. Decorative stone production would continue from three existing placer mining claims.
Impacts on Utility Corridor Routing and Development

Under the all wilderness alternative, the potential north-south utility corridor would be rerouted 1 mile to the west outside of the WSA. This action would not increase the length of the proposed 500-kV powerline, but it would shift the location into the Saddle Butte WSA (OR-3-111). (See the Saddle Butte WSA appendix for a discussion of impacts on the corridor if that WSA is designated wilderness.)

Conclusion: The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.

Impacts on Vegetation

Little or no change would take place to vegetative composition or ecological condition. The area would be closed to projected mineral exploration and development, preventing disturbance to vegetation from such activities.

Closure of 28.5 miles of ways and 7 miles of roads to vehicle use would result in revegetation of approximately 30 acres in three to five years for the ways, and five to ten years for the roads.

Conclusion: The 28.5 miles of ways and 7 miles of roads would revegetate. Little or no change would occur to vegetation on the rest of the area.

Impacts on Wildlife

Wildlife habitat for approximately 500 mule deer, 250 wintering antelope, 45 California bighorn sheep, northern bald eagles and other game and nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 10,123 AUMs would not be allowed because of its potential impact on wilderness values. Surplus forage above the minimum level identified by ODFW as necessary for deer and antelope population goals would be available. Closure of 28.5 miles of ways and 7 miles of roads would reduce seasonal vehicle disturbances to antelope on portions of the plateaus and to raptors nesting along the canyon rim.

Conclusion: Wildlife habitat and populations would be maintained on 76,940 acres designated wilderness.

Impacts on Watershed

As under the all wilderness alternative, watershed condition and water quality would be little effected under the enhanced wilderness alternative. Closure of 28.5 miles of ways and 7 miles of roads would result in some reduction in erosion as the ways revegetate in 3 to 5 years, and the roads revegetate in 5 to 10 years.

Conclusion: Watershed condition and water quality would be maintained.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 7,106 AUMs within the portions of the seven allotments in the WSA. Wilderness designation would preclude the allocation of 10,123 AUMs of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values. Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 28.5 miles of ways and 7 miles of roads would be precluded under wilderness designation. This would result in inconvenience and additional expense to livestock operators. The cow camp would have to be supplied by horse. Heavy equipment may be used once every 5 to 10 years for maintenance of nine reservoirs, 0.25 miles of pipeline and one water trough. This periodic infrequent use would involve 4 miles of ways and 3 miles of cross-country travel.

Conclusion: A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 28.5 miles of ways and 7 miles of roads for day-to-day livestock management would be precluded causing some inconvenience and a slight increase in cost to livestock operators.

Impacts on Recreation Use

The enhanced wilderness alternative would have nearly the same impact as the all wilderness alternative: There would be a relatively minor impact on recreation because the majority of use is confined to float trips on the Owyhee River. The same decrease in recreational opportunities dependent on motorized access and increased opportunities for primitive and unconfined recreation identified under the all wilderness alternative would occur under this alternative. As the public becomes aware of the area's wilderness
qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases in day hiking use and vehicle oriented hunting. In addition, acquisition of the 3,385 acres of mineral estate would prevent mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on the six dead-end roads and acquisition of 1,240 acres of private lands would further enhance opportunities for viewing scenery and wildlife in a natural setting.

Conclusion: The area's recreation use level of 6,000 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at 7,106 AUMs and overall recreation use would remain at 6,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $157,000.

Partial Wilderness (Proposed Action)

Recommended Suitable for Wilderness: 64,225 acres (65,425 acres if 1,200 acres of private land is acquired)
Recommended Nonsuitable for Wilderness: 11,475 acres

Impacts on Wilderness Values

The partial wilderness alternative would add 65,425 acres to the NWPS, assuming that 1,200 acres of private lands would be acquired as proposed under the alternative. The mineral estate on 2,610 acres would also be acquired. Five miles of roads and 19.5 miles of ways would be closed (the 1.5-mile road to the private property at Bogus Creek would only be closed if acquisition is successful). All of the area recommended suitable would be designated as wilderness, and the wilderness values within the designated area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including undisturbed riparian lands, cultural resources, bighorn sheep and raptor habitat, outstanding scenery and undeveloped plateaus and canyons would also be protected. Acquisition of the mineral estate and private land would prevent disturbance from projected energy and mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Energy and mineral exploration on the 11,475 acres recommended nonsuitable would compromise wilderness values due to the projected construction of 9.1 miles of new roads and a surface disturbance of approximately 13 acres. Mining activities and motorized vehicle access would encroach upon the Owyhee River ACEC from the west in the north, central and southern areas of the WSA.

Naturalness

Naturalness within the area recommended suitable as wilderness would be enhanced by prohibiting motorized vehicles on the ways and roads. Closure of 19.5 miles of ways and 5 miles of dead-end roads would remove their unnatural influence from approximately 2,060 acres (about 2.7 percent of the WSA). The ways and roads would revegetate making them unnoticeable in 3 to 5 years and 5 to 10 years, respectively. Acquisition of 2,610 acres of mineral estate and 1,200 acres of private land would preclude impacts from projected mineral entry and exploration, thus preserving the naturalness of the area.

Naturalness on the 11,475 acres recommended nonsuitable as wilderness would continue to be impacted on 900 acres (1.2 percent of the WSA) by vehicle traffic on 9 miles of ways and 2 miles of roads. Naturalness would also be reduced on approximately 13 acres due to surface disturbance from projected mineral exploration, with construction of 9.1 miles of new roads. Reclamation and revegetation would leave little evidence of disturbance to naturalness from mineral exploration.

Solitude

Opportunities for solitude would be further improved through the elimination of motorized use on the 19.5 miles of ways and 5 miles of dead-end roads. This reduction in vehicular access would provide a large core area for people to hike into and experience solitude with no disturbance from vehicle use. Precluding projected mineral entry and exploration activities on the 2,610 acres of mineral estate and 1,200 acres of private lands would prevent their short-term disruption of solitude.
Short-term, local impairment of solitude would occur on the 11,475 acres recommended nonsuitable from projected energy and mineral exploration activities and motorized vehicle use of the 2-mile road and 9 miles of ways.

**Primitive and Unconfined Recreation**

Closure of the 19.5 miles of ways and 5 miles of dead-end roads to motorized use would increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. In addition, acquisition of 2,610 acres of mineral estate and 1,200 acres of private lands would prevent mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The quality of hunting, bird watching, photography and sightseeing experiences would improve with the removal of vehicles and the rehabilitation of the ways. A more natural, primitive setting would be provided.

Motorized vehicle use of the 2-mile road and 9 miles of ways on the 11,475 acres recommended nonsuitable would detract from opportunities for primitive and unconfined recreation. Projected energy and mineral exploration on 11,475 acres would result in minor, short-term disturbance to primitive recreation opportunities.

**Special Features**

Eliminating motorized vehicle use on the 19.5 miles of ways and 5 miles of dead-end roads would reduce impacts to special features by reducing access to the plateaus and the Owyhee River ACEC in the central portion of the WSA. Acquisition of the 2,610 acres of mineral estate and 1,200 acres of private lands would prevent impacts from projected mineral exploration. These impacts include minor seasonal disturbance of deer, antelope, bighorn sheep and raptors, impairment of scenic vistas, and some damage to cultural sites that are traversed by roads and/or are accessible to vandals.

Motorized vehicle use of the 2-mile dead-end road and 9 miles of ways in the 11,475 acres recommended nonsuitable would have relatively little effect, because most special features are associated with the ACEC corridor along the Owyhee River. However, operation of vehicles on the roads and ways would continue to have a minor detrimental effect on the quality of scenic vistas.

**Conclusion:** Wilderness designation of 65,425 acres would protect and enhance existing wilderness values. The closure of 19.5 miles of ways and 5 miles of roads would further preserve wilderness values.

Wilderness values on the 11,475 acres recommended nonsuitable would be impaired by continued motor vehicle access, and energy and mineral exploration and development, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 56,065 acres of public land within the WSA to mineral entry, assuming acquisition of 2,610 acres of mineral estate and 1,200 acres of private land. An additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action.

A total of 11,475 acres of public land recommended as nonsuitable for wilderness would be open to mineral exploration and development.

**Energy Development**

Projected exploration for energy resources would be precluded on 56,065 acres (an additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action), including geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA, and oil and gas. Due to a lack of direct evidence indicating favorability and an absence of confirmed petroleum and/or geothermal resource-bearing formations, only casual, non-surface disturbing exploration with no development is postulated for oil and gas, and geothermal resources, on the nonsuitable portion of the WSA.

**Conclusion:** No impact on energy development is expected.

**Mineral Development**

Projected exploration for mineral resources would be precluded on 56,065 acres (an additional 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action), including gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA (refer to Map 6 for the specific locations); zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA; and bentonite and fluorite. As a consequence of wilderness designation, the development of one projected gold/silver open-pit mine would be precluded.
The drilling of 31 gold/silver mercury core holes and the digging of one zeolite bulk sample trench/pit is postulated to occur in the nonsuitable portion of the WSA. The discovery of economically mineable deposits is not expected and no development is projected.

Continued production of decorative stone from three placer mining claims in Chalk Basin would occur as projected.

**Conclusion:** Wilderness designation would result in foregone production from one open-pit gold/silver mine. Continued production of decorative stone from three existing claims would occur.

### Impacts on Utility Corridor Routing and Development

Under the partial wilderness alternative, the potential north-south utility corridor would be rerouted 1 mile to the west outside of the WSA. This action would not increase the length of the proposed 500-kV powerline, but it would shift the location into the Saddle Butte WSA (OR-3-111). (See the Saddle Butte WSA appendix for a discussion of impacts on the corridor if that WSA is designated wilderness.)

**Conclusion:** The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.

### Impacts on Vegetation

In the suitable area, closure of 19.5 miles of ways and 5 miles of roads to vehicle traffic would result in revegetation in 3 to 5 years for the ways and 5 to 10 years for the roads. Little change would take place to vegetative composition on the remainder of the area recommended suitable for wilderness designation.

In the nonsuitable area, 9 miles of ways and 2 miles of roads would not revegetate due to continued vehicle use. Gold exploration would result in 31 drill sites and 9.1 miles of new roads, temporarily disturbing or removing vegetation on approximately 13 acres. These acres would revegetate in 5 to 10 years. Excavation of an exploratory trench for zeolites would temporarily remove vegetation on 0.25 acres, which includes the pit site and 0.1 mile of new road.

**Conclusion:** In the suitable area, 2 miles of roads and 19.5 miles of ways would revegetate. Overall, little or no change would take place to vegetative composition or ecological status on most of the WSA. Vegetation removed on approximately 13 acres in the nonsuitable area would be reclaimed following projected mineral exploration activities.

### Impacts on Wildlife

Wildlife habitat for approximately 450 mule deer, 250 wintering antelope, 45 California bighorn sheep, northern bald eagles and other game and nongame species would be maintained in the area recommended suitable for wilderness. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 10,123 AUMs would not be allowed because of its potential impact on wilderness values. Surplus forage above the minimum level identified by ODFW as necessary for deer and antelope population goals would be available. Closure of 19.5 miles of ways and 5 miles of roads would reduce seasonal vehicle disturbances to antelope on portions of the plateaus and to raptors nesting along the canyon rim.

Activity related to minerals exploration in the area recommended nonsuitable would cause minor and temporary wildlife displacement and habitat losses for game and nongame species with construction of 9.1 miles of new road and approximately 13 acres of surface disturbance. All wildlife species disturbed would reoccupy formerly-used areas after exploration activities ceased, habitat was rehabilitated and roads constructed for exploration were closed.

**Conclusion:** Wildlife habitat and populations would be maintained on 65,425 acres designated wilderness.

### Impacts on Watershed

Watershed condition and water quality would be little effected under the partial wilderness alternative. Closure of 19.5 miles of ways and 5 miles of roads would result in some reduction in erosion as they revegetate. Development of 9.1 miles of roads for mineral exploration would cause some short-term erosion until the disturbed area were reclaimed.

**Conclusions:** There would be little impact on watershed condition and water quality.

### Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 7,106 AUMs within the portions of the seven allotments in the WSA. Wilderness designation
would preclude the allocation of 10,123 AUMs of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values. Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 19.5 miles of ways and 5 miles of roads would be precluded under wilderness designation. This would result in inconvenience and additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of nine reservoirs, 0.25 miles of pipeline and one water trough. This periodic, infrequent use would involve 4 miles of ways and 3 miles of cross-country travel.

In the area recommended nonsuitable, livestock operators would continue to manage livestock at current allotment levels utilizing 19.5 miles of ways and 5 miles of roads.

**Conclusion:** A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 19.5 miles of ways and 5 miles of roads for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators.

**Impacts on Recreation Use**

There would be a relatively minor impact on recreation because the majority of use is confined to float trips on the Owyhee River. In the suitable area, a decrease in recreational opportunities that are dependent on motorized access and increased opportunities for primitive and unconfined recreation would occur. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases in day hiking use and vehicle oriented hunting. In addition, acquisition of the 2,610 acres of mineral estate would prevent projected mineral exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on the five dead-end roads and acquisition of 1,200 acres of private lands would further enhance opportunities for viewing scenery and wildlife in a natural setting.

The 2-mile road and 9 miles of ways would provide motorized vehicle access to the 11,475 acres recommended nonsuitable for wilderness and maintain accessibility of the plateau and Owyhee River Canyon to day hikers and hunters. Recreation use levels in the nonsuitable area would remain approximately the same.

**Conclusion:** The area's recreation use level of 6,000 visitor days per year would not be affected.

**Impacts on Local Personal Income**

Livestock grazing would remain at 7,106 AUMs and overall recreation use would remain at 6,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $157,000.

**No Wilderness/No Action**

**Recommended Suitable for Wilderness:** 0 acres  
**Recommended Nonsuitable for Wilderness:** 75,700 acres

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 75,700 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, undisturbed riparian areas, solitude, primitive and unconfined recreation, and the area's special features, including bighorn sheep and raptors, exceptionally diverse cultural sites, outstanding scenery, and undeveloped plateaus and canyons would be subject to the effects of the projected management actions. Projected actions include casual energy and mineral exploration, development of one open-pit gold mine, designation of a utility corridor, continued use of ways for livestock management and facility inspection/maintenance, allocation of 1,624 AUMs of currently available but unallocated forage within the WSA, construction of 2 miles of fence and two reservoirs, development of three springs and continued recreational vehicle use limited to existing roads and ways.

**Naturalness**

Continued vehicle use of 28.5 miles of ways and 7 miles of dead-end roads would maintain the impact of the vehicle tracks upon naturalness on approximately 1,920 acres (2.6 percent of the WSA) for the ways and approximately 1,050 acres (1.4 percent of the WSA) for the roads.
Energy exploration would result in the drilling of a 4,000-foot geothermal gradient hole which would disturb 1.4 acres. The discovery of thermal waters with sufficiently high temperatures for electrical generation is not expected and reclamation would leave little evidence of disturbance to naturalness.

The development of one open-pit gold/silver mine and milling/leaching complex would cause permanent impacts to the area’s naturalness by directly disturbing 250 acres. The open-pit mine would indirectly impair naturalness on 3,200 acres.

Construction of a powerline in the proposed utility corridor would cause a surface disturbance of approximately 10 acres and visually detract from naturalness on approximately 1,125 acres.

The allocation of an additional 1,624 AUMs would increase trampling around water sources and increase utilization of forage, resulting in a more grazed appearance with less residual ground cover. Construction of a 2-mile fence for livestock management would result in an improvement of naturalness in the east-central area of the WSA by relieving grazing pressure and increasing ground cover there. The fence would add an unnatural feature influencing approximately 40 acres.

Development of two reservoirs and three springs would remove vegetation on approximately 11 acres and indirectly impair naturalness on approximately 220 acres.

**Solitude**

Continued vehicle use of 28.5 miles of ways and 7 miles of dead-end roads would cause short-term, local impairment of solitude opportunities in their vicinity. Projected energy and mineral exploration would periodically cause disruption of solitude near these activities. Development of one open-pit gold/silver mine complex would permanently disrupt opportunities for solitude in the vicinity of the mine.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 28.5 miles of ways and 7 miles of roads in the WSA.

Energy and mineral exploration and development, powerline construction, development of reservoirs and springs, construction of a 2-mile fence and an allocation of 1,624 additional AUMs in grazing use within the WSA would reduce primitive recreation opportunities. These activities would result in a total of approximately 270 acres of surface disturbance and restrict opportunities for primitive and unconfined recreation. Additional livestock or longer periods of grazing would increase vegetation removal, trampling, fecal deposits and fouling of water, especially in the areas of livestock concentration (i.e. around water, shade and on level ground), which are areas where recreationists also concentrate.

**Special Features**

Continued vehicle use of existing roads and ways would maintain the impacts upon special features which include riparian areas, habitat for bighorn sheep and raptors (including the northern bald eagle which is Federally listed as threatened in Oregon), exceptionally diverse cultural sites, outstanding scenery and undeveloped plateaus and canyons. These impacts include soil compaction and rutting of riparian areas, minor seasonal disturbance of bighorn sheep and raptors, impairment of scenic vistas and possible destruction or damage to cultural sites from vehicle passage or vandalism and theft.

Energy and mineral exploration would result in a minimal, short-term disturbance of bighorn sheep and raptors. Development of the gold/silver mine complex would result in permanent, long-term impairment of scenic vistas, disturb bighorn sheep and raptors, and possibly destroy cultural sites in the vicinity of Lambert Rocks.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 4,600 acres of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

A total of 66,340 acres of public land in the WSA would be open to mineral exploration and development. A total of 9,360 acres of public land along the Owyhee River, which is part of the Wild and Scenic River System, would remain closed to mineral entry.

**Energy Development**

Projected exploration for geothermal resources, which have a moderate potential for occurrence on 100 acres in the east-central portion of the WSA, and oil and gas, would occur. However, the discovery of thermal waters hot enough for electrical generation is
not expected, nor are there residences or businesses close enough to use geothermal energy as a source of direct heat. Consequently no geothermal development has been projected. Due to a lack of direct evidence indicating favorability and an absence of confirmed petroleum resource-bearing formations, only casual non-surface disturbing exploration with no development is postulated for oil and gas.

**Conclusion:** There would be no impact on energy development.

**Mineral Development**

Projected exploration for gold, silver and mercury, which have moderate potential for occurrence on 23,150 acres scattered throughout the WSA would occur. The projected development of an open pit gold/silver mine in the east-central portion of the WSA would occur.

Projected exploration for zeolites, which have a moderate potential for occurrence on 320 acres in the southwestern portion of the WSA, is postulated to include the digging of one bulk sample trench/pit. The discovery of an economically mineable deposit is not expected and no development is projected.

Continued production of decorative stone from three placer mining claims in Chalk Basin is projected to occur.

**Conclusion:** There would be no impact to mineral development.

**Impacts on Utility Corridor Routing and Development**

Under the no wilderness alternative, the potential north-south utility corridor would be routed through the extreme west-central portion of the WSA as projected. The corridor would be available for construction of the proposed 500-kV powerline.

**Conclusion:** There would be no impact on the utility corridor.

**Impacts on Vegetation**

Under the No Wilderness alternative, the entire area would be subject to disturbance from mineral exploration and development except along the Owyhee River where Wild & Scenic River designation precludes mineral entry. Exploration for gold is expected to result in 106 drill sites and 23 miles of new roads, disturbing vegetation temporarily on 34 acres. Where development does not occur, revegetation is expected within three to five years. One permanent gold mine is anticipated, which would result in long-term removal of vegetation on 250 acres. One mile of existing road also would be up-graded to provide access to the mine. A trench for zeolite exploration would permanently remove vegetation on 0.25 acres, which includes the pit site plus disturbance on 0.10 mile of new road. The existing rock quarry in Chalk Basin would permanently disturb five acres of vegetation on the quarry site and access roads. Drilling of a geothermal well would remove vegetation on 1.4 acres. Reclamation would alleviate any disturbance to vegetation on the geothermal well site.

The proposed utility corridor, once developed, would permanently remove vegetation on approximately 10 acres from tower pad and access road construction.

Construction of two reservoirs would remove all vegetation on five acres per site, and development of three springs would remove vegetation on 0.50 acre per site. Utilization of key forage species would increase in a vicinity of approximately 20 acres per reservoir and spring site, resulting in a more grazed appearance and a decrease in residual ground cover. A 2-mile fence would be constructed and, when combined with development of the springs and reservoirs, a better distribution and management of livestock would result. An upward trend in ecological status would be predicted in areas that are currently over-grazed.

Utilization of key forage species would increase from 40 percent to approximately 50 percent as a result of allocating 1,624 AUMs of forage currently available but unallocated. Of these AUMs, 1,323 would be allocated in the Saddle Butte Allotment where winter use only occurs. Although there would be a reduction in residual ground cover and a more grazed appearance to the range toward the end of winter, neither ecological status nor vegetative composition would be affected. This result is anticipated because moderate winter grazing does not affect either vigor or mortality of the dormant bunchgrasses. In the Cow Creek Allotment where the remaining 301 acres would be allocated, the range would have a more grazed appearance, with a decrease in residual ground cover. Vegetative composition and ecological status would not greatly change because this area is in low to mid-seral stages already. The mid-seral stage areas may decline to an early-seral stage if the increased grazing level is permitted more than one year out of three in the spring, which is the critical growing season for bunchgrasses. However, sufficient crested wheatgrass seedlings have been planted
in this allotment, but outside the WSA to provide enough management options to maintain current ecological conditions even with the increased grazing levels.

**Conclusion:** Vegetation would be removed on approximately 270 acres. Range projects would result in an upward trend in ecological conditions in areas that are currently over-grazed. Increases in allocation of livestock forage would result in higher utilization levels of key forage species and decreases in residual ground cover, with declining trends in ecological status possible in one allotment.

**Impacts on Wildlife**

Activity related to projected mineral exploration would cause minor and temporary wildlife displacement and habitat losses for game and nongame species with the construction of 23 miles of roads and 34 acres of surface disturbance. It is assumed that surface disturbance impacts would occur over a long period of time and that cumulative impacts would not be a problem. All wildlife species disturbed would probably reoccupy formerly used areas after exploration activities ceased, habitat was rehabilitated and the roads constructed for exploration were closed.

Activity related to mineral development would cause long-term habitat losses on approximately 260 acres and result in upgrading 1 mile of existing road. Less than 50 mule deer, some of the bighorn sheep and some common nongame species would be displaced to adjoining suitable habitats due to direct habitat losses and disruption of their freedom from human interaction. Direct mortalities and habitat losses to small terrestrial species such as lizards and snakes would eliminate or severely reduce local populations.

Wildlife in the overall area would be managed to support existing wildlife populations in accordance with ODFW management goals for the entire 1.9-million-acre wildlife management unit. Adequate wildlife forage and cover would be provided in the preparation of livestock allotment management plans. Spring and reservoir construction would provide minor beneficial impacts for game and nongame wildlife species. Impacts are considered minor due to the well distributed water sources present in the WSA. The improved livestock grazing system resulting from fence construction would provide better quality summer and winter forage for big game (i.e. mule deer and antelope).

Utility corridor construction and maintenance impacts to wildlife would be minor. Primary wildlife habitat values are located immediately adjacent to the Owyhee River in the summer and in the flats adjoining the river in the winter. Neither area would be significantly impacted by the powerline corridor.

The ACEC, Wild River and Scenic Waterway designations would continue to provide protection for wildlife by restricting powerboat use, developments and livestock grazing. Potential impacts to waterfowl as a result of visitor use on the Owyhee River during the nesting season would be mitigated following monitoring studies.

**Conclusion:** Local declines in terrestrial wildlife habitat and populations, including mule deer and bighorn sheep, would occur on approximately 270 acres.

**Impacts on Watershed**

Projected mineral development on approximately 260 acres would cause increased erosion and cause minor deterioration of water quality in the vicinity of these operations. Development of approximately 24 miles of new roads associated with energy and mineral exploration would cause a short-term increase in erosion until the disturbed lands were reclaimed. Continued operation of vehicles on the roads and ways of the WSA would continue to cause some minor erosion in the watershed. Increased erosion would also result from the construction of a 4.5-mile powerline in the west-central portion of the WSA.

Allocation of an additional 1,624 AUMs would result in minor deterioration of watershed quality in the Bogus Creek drainage due to trampling of riparian areas and fouling of the water from fecal deposits. However, construction of a 2-mile fence south of Bogus Ranch would allow for a better distribution of livestock and alleviate problems that would otherwise result.

**Conclusions:** Watershed condition and water quality would decline slightly.

**Impacts on Livestock Grazing**

Presently available but unallocated forage would be allocated, resulting in an increase in livestock forage allocation of 10,123 AUMs within affected pastures. Approximately 1,624 of the AUMs would be on lands within the WSA. Vehicle use for livestock management and facility inspection/maintenance on 28.5 miles of ways and 7 miles of roads would continue.

The construction of two reservoirs and 2 miles of fence, and development of three springs would result in improved livestock distribution and management.
**Conclusion:** Construction of two reservoirs, 2 miles of fence and development of three springs would improve livestock distribution and management. An additional allocation of 10,123 AUMs would be realized.

**Impacts on Recreation Use**

Most of the recreational use of the WSA would continue to be concentrated in the Owyhee River Canyon. Motorized vehicle use would continue on 28.5 miles of ways and 7 miles of dead-end roads. Vehicle access for day hikes and hunting would continue. Surface disturbance and disruption of wildlife from energy and mineral exploration would slightly disturb the natural setting for recreational activities, including hunting. Overall, however, minor decreases in primitive recreation opportunities would be offset by minor increases in vehicle-dependent activities and current recreation use levels would be maintained.

**Conclusion:** The area’s recreation use level of 6,000 visitor days per year would not be affected.

**Impacts on Local Personal Income**

Livestock grazing would increase by 10,123 AUMs and overall recreation use would remain at 6,000 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $121,000.

**Unavoidable Adverse Impacts of the Proposed Action**

Under the Proposed Action (Partial Wilderness), energy and mineral exploration on 56,065 acres, production from one open-pit gold/silver mine and a potential 10,123 AUM increase in livestock forage allocation would be foregone. In addition, the closure of 19.5 miles of ways and 5 miles of dead-end roads would add to livestock operators’ expenses and restrict recreational opportunities for people who prefer to use motorized vehicles.

On the 11,475-acre nonsuitable portion, projected mineral exploration activities would result in a short-term surface disturbance of approximately 13 acres and visually influence an additional 1,800 acres.

**Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity**

Under the Proposed Action, most existing short-term uses would continue, with some added, minor inconvenience and expense to livestock operators resulting from the exclusion of vehicles for day-to-day inspection activities on 24.5 miles of roads and ways. The long-term productivity of the wilderness values would be preserved on the 64,225 acres designated wilderness.

Future development options, including projected energy and mineral exploration would remain open in the 11,475-acre nonsuitable area. Since projected exploration impacts would be reclaimed, no long-term impacts from these activities are expected. However, other uses could affect long-term productivity of wilderness values over the long term.

**Irreversible and Irretrievable Commitments of Resources**

Under the Proposed Action, there would be no irreversible or irrevocable commitment of the wilderness resource or any other resource from projected activities either in the suitable area or nonsuitable area.

**5. Wilderness Manageability and Rationale for the Proposed Action**

**Manageability of the Area as Wilderness**

The area is capable of being managed to preserve its wilderness characteristics. Manageability would be improved if the private inholdings and mineral estate of the split-estate lands were acquired and the five dead-end roads were closed, as suggested under the enhanced alternative. The acquisitions would prevent
potential adverse effects from access to, and incompatible surface-disturbing activities on, these parcels, although no long-term activities of this nature are projected. The partial alternative allows continued vehicle access to the cow camp near Sand Springs and leaves an area with moderate potential for gold, silver and mercury resources, open to mineral exploration and development in the northwest portion of the WSA.

Two features that detract from manageability are: 1) the narrow configuration of the WSA in the northern section, between Rinehart Ranch and The Hole In The Ground, and 2) difficulties in effectively excluding motorized vehicles from the flat plateaus that may be accessed relatively easily even though the ways leading to them would be closed.

Rationale for Selection of the Proposed Action

The partial wilderness alternative is the proposed action because the benefits of preserving the area’s wilderness values (including the undeveloped plateaus and canyons, the undisturbed riparian lands, habitat for bighorn sheep and raptors such as the northern bald eagle which is Federally listed as threatened in Oregon, exceptionally diverse cultural sites and outstanding scenery) would outweigh the benefits of maintaining options for exploration for energy and mineral resources, development of a gold/silver mine, continued vehicle use on 19.5 miles of ways and 5 miles of dead-end roads, construction of range projects and the allocation of 10,123 AUMs of available but unallocated forage. A total of 11,475 acres are recommended nonsuitable because they include lands that provide access to livestock operators and have a moderate potential for the discovery of gold, silver and mercury. By excluding these lands from wilderness designation potential wilderness manageability problems would be avoided.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: To protect natural resources, the BLM should consider an alternative greater than the proposed alternative and acquire inholdings or restrict developments. Response: The proposed alternative, as currently amended, includes the area near the Cutler Ranch previously not recommended and provides for acquiring of private inholdings. BLM wilderness management policy limits development activities that would impair wilderness values.

Comment: Because wilderness designation would lead to restrictions on grazing, the boundary should be 0.25 miles from the canyon rim. Response: Wilderness designation would not restrict grazing (see Statewide Volume, Management Assumptions). There would be little difference in grazing management between the proposed boundary and a boundary located 0.25 miles from the rim.

Comment: The boundaries of the suitable recommendation are poorly drawn. Include the east portion of 3-111 (Saddle Butte WSA) and the west portion of 3-59 (Owyhee Breaks). Response: Closure of the boundary roads between the WSAs was not analyzed because they are required to provide access for management purposes.

Comment: BLM overstated the manageability problems of the enhanced wilderness alternative. Response: Upon further analysis and public comments, the area near the Cutler Ranch has been recommended as suitable for wilderness with the acquisition of inholdings.
<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>75,700</td>
<td>75,700</td>
<td>64,225</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation&lt;sup&gt;1&lt;/sup&gt;</td>
<td>75,000</td>
<td>75,000</td>
<td>63,525</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>7</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>1</td>
<td>0</td>
<td>9.1</td>
<td>29.3</td>
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<tr>
<td>Miles of Ways Closed</td>
<td>28.5</td>
<td>28.5</td>
<td>19.5</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0</td>
<td>1,240</td>
<td>1,200</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0</td>
<td>3,385</td>
<td>2,610</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation&lt;sup&gt;4&lt;/sup&gt;</td>
<td>62,955</td>
<td>62,955</td>
<td>52,255</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated (AUMs)&lt;sup&gt;5&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10,123</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed: Fences (Miles)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Reservoirs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Springs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Miles of Utility Corridor Developed</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4.5</td>
</tr>
</tbody>
</table>

<sup>1</sup>Except for 7 miles of roads and 28.5 miles of ways in the WSA, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
<sup>2</sup>Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.
<sup>3</sup>Upon acquisition of the mineral estate, these lands would be withdrawn from mineral location and leasing.
<sup>4</sup>This total does not include 9,360 acres already congressionally withdrawn through the Wild and Scenic River designation.
<sup>5</sup>Of the 10,123 AUMs allocated under the No Wilderness alternative, approximately 1,624 AUMs would be on portions of pastures within the WSA.
## Table 2. Summary of Environmental Consequences of Alternatives, Lower Owyhee Canyon WSA (OR-3-110)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire 75,700 acres within the Lower Owyhee Canyon WSA would result in protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 76,940 acres would protect and enhance existing wilderness values. The closure of 28.5 miles of ways and 7 miles of roads would further preserve wilderness values.</td>
<td>Wilderness designation of 65,425 acres would protect and enhance existing wilderness values. The closure of 19.5 miles of ways and 5 miles of roads would further preserve wilderness values. Wilderness values on the 11,475 acres recommended nonsuitable would be impacted by continued motor vehicle access, and energy and mineral exploration and development, with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 6,600 acres of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one open pit gold/silver mine. Decorative stone production would continue from three existing placer mining claims.</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one open pit gold/silver mine. Decorative stone production would continue from three existing placer mining claims.</td>
<td>No impact on energy development is expected. Wilderness designation would result in foregone production from one pit gold/silver mine. Continued production of decorative stone from three existing claims would occur.</td>
<td>There would be no impact on energy and mineral development.</td>
</tr>
<tr>
<td>Utility Corridor Routing</td>
<td>The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.</td>
<td>The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.</td>
<td>The utility corridor would not be designated in the WSA, and the powerline would be rerouted 1 mile to the west, adding negligible length to the route.</td>
<td>There would be no impact on the utility corridor.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>The 28.5 miles of ways would revegetate. Overall, little of no change would take place to vegetative composition or ecological status on most of the WSA.</td>
<td>The 28.5 miles of ways and 7 miles of road would revegetate. Little or no change would occur to vegetation on the rest of the area.</td>
<td>In the suitable area, 2 miles of roads and 19.5 miles of ways would revegetate. Overall, little or no change would take place to vegetative composition or ecological status on most of the WSA. In the nonsuitable area, vegetation removed on approximately 13 acres would be reclaimed following projected mineral exploration activities.</td>
<td>Vegetation would be removed on approximately 270 acres. Range projects would result in an upward trend in ecological conditions. Increases in allocation of livestock forage would result in higher utilization levels of key forage species and decreases in residual ground cover, with declining trends in ecological status possible in one allotment.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 75,700 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 76,940 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 65,425 acres designated wilderness. In the nonsuitable portion, energy and mineral exploration activities would cause temporary disruption of wildlife habitat on approximately 13 acres.</td>
<td>Local declines in terrestrial wildlife habitat and populations, including mule deer and bighorn sheep, would occur on approximately 270 acres.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Watershed condition and water quality would be maintained.</td>
<td>Watershed condition and water quality would be maintained.</td>
<td>There would be little impact on watershed condition and water quality.</td>
<td>Watershed condition and water quality would decline slightly due to projected mineral and utility corridor development.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 28.5 miles of ways for day-to-day livestock management would be precluded, causing some inconvenience and a slight increase in cost to livestock operators.</td>
<td>A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 28.5 miles of ways and 7 miles of roads for day-to-day livestock management would be precluded causing some inconvenience and a slight increase in cost to livestock operators.</td>
<td>A potential allocation of 10,123 AUMs of currently available forage would be foregone. The use of 19.5 miles of ways and 5 miles of roads for day-to-day livestock management would be precluded with some inconvenience and a slight increase in cost to livestock operators.</td>
<td>Construction of two reservoirs, 2 miles of fence and development of three springs would improve livestock distribution. An additional allocation of 10,123 AUMs would be realized.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area’s recreation use level of 6,000 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of 6,000 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of 6,000 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of 6,000 visitor days per year would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local income would remain at approximately $157,000.</td>
<td>Annual local income would remain at approximately $157,000.</td>
<td>Annual local income would remain at approximately $121,000.</td>
<td>Annual local income would increase by approximately $157,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Lower Owyhee Canyon WSA (OR-3-110)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, Silver, Mercury</td>
<td>See Map 6</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Tin, Molybdenum</td>
<td>Part of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Geothermal</td>
<td>See Map 6</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>See Map 6</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Fluorite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Lower Owyhee Canyon WSA (OR-3-110)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.¹</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowley (No. 0303)</td>
<td>6,964</td>
<td>11/01-04/15</td>
<td>12</td>
<td>1,000</td>
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<tr>
<td>Quartz Mtn. (No. 0406)</td>
<td>5,026</td>
<td>11/01-04/15</td>
<td>10</td>
<td>3,900</td>
</tr>
<tr>
<td>Saddle Butte 1/ (No. 0805)</td>
<td>6,426</td>
<td>11/01-03/31</td>
<td>16</td>
<td>1,028</td>
</tr>
<tr>
<td>West Cow Creek (No. 0902)</td>
<td>11,494</td>
<td>04/01-10/15</td>
<td>7</td>
<td>864</td>
</tr>
<tr>
<td>Bogus Creek (No. 0904)</td>
<td>250</td>
<td>02/15-03/31</td>
<td>80</td>
<td>200</td>
</tr>
<tr>
<td>Morcum (No. 0907)</td>
<td>100</td>
<td>11/01-02/28</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Lodge (No. 0901)</td>
<td>3,150</td>
<td>04/01-10/31</td>
<td>1</td>
<td>14</td>
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<tr>
<td>Total</td>
<td>33,410</td>
<td></td>
<td></td>
<td>7,106</td>
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</table>

¹The Saddle Butte Allotment was split from the Barren Valley Community Allotment in 1984.
Table 5. Effects of Alternatives on Local Personal Income, Lower Owyhee Canyon WSA (OR-3-110) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/ No Action</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>+10,123</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
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U.S. Department of the Interior
Bureau of Land Management
Vale District
Lower Owyhee Canyon WSA
OR-3-110
LOCATION MAP

MAP 1
Moderate Potential
(MC) for Zeolite
(MB) Rest of Area

Moderate Potential
(MC) for Gold, Silver and Mercury

Moderate Potential
(MC) for Geothermal Resources
(MB) Rest of Area

 Entire WSA:
 Moderate Potential
 (MB) for Oil/Gas, Bentonite and Fluorite

U.S. Department of the Interior
Bureau of Land Management
Vale District

Lower Owyhee Canyon WSA
OR-3-110

MODERATE OR HIGH POTENTIAL
MINERAL OR ENERGY RESOURCES
Lower Owyhee Canyon WSA, OR-3-110. Central portion of the WSA looking southeast along bluffs in Chalk Basin. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. Lamber Rocks is visible on the far left. September 1983.

Lower Owyhee Canyon WSA, OR-3-110. South central portion of the WSA looking southeast. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. The seeding above the rim is outside the WSA. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Saddle Butte Wilderness Study Area (OR-3-111)

1. Introduction

General Description of Study Area

The Saddle Butte Wilderness Study Area (WSA) is in Malheur County, approximately 10 miles north of the junction of U.S. Highway 95 and Oregon State Highway 78 (see Map 1).

The study area contains 86,300 acres of public land (see Map 2), including eight parcels of split-estate lands totaling 4,920 acres. The WSA is bounded on the northeast, south and east by county gravel roads. The northwest boundary of the WSA borders State of Oregon land.

The WSA is roughly triangular in shape and contains three distinct landforms. The northern half of the WSA is a relatively high, flat plateau that slopes gradually toward Bull Creek to the east and Ryegrass Creek to the south. The south-central portion is a lava flow which forms a wide band of rough-surfaced ridges, hillocks, depressions and lava tubes. The southeastern tip of the WSA is a relatively flat lowland, except for a few erosional channels along the eastern boundary. Much of the WSA drains east directly into the Owyhee River. The generally flat topography traps runoff in small, shallow lake beds which are usually dry by early summer. Tub Spring is the only perennial water source in the area.

The major plant community in the WSA is big sagebrush/bluebunch wheatgrass. Along the eastern boundary, the plant community has been influenced by fire and consists primarily of grasses and other herbaceous plants. Some concentrations of shadscale and Indian ricegrass occur along the southeastern boundary. Herbaceous vegetation also grows in the lava flow where soil pockets occur.

Interrelationships

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026 square miles of land area. The WSA supports about 75 mule deer during the summer and as many as 700 pronghorn antelope during the winter. The ODFW manages the Owyhee unit to produce 15 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope, and periodically conducts a census of big game wildlife by aerial surveillance.

The kit fox (a State threatened species) and Townsend’s big-eared bat (a Federal Candidate for listing under the Endangered Species Act) both occur within the WSA.

The proposed action for this WSA would meet State goals for upland game birds and big game species present. It would meet State goals for the kit fox, Townsend’s big-eared bat and all other wildlife species.

Within the WSA lies the Saddle Butte Lava Tubes Area of Critical Environmental Concern (ACEC) (see Map 2). This 7,040-acre area contains over 9 miles of known lava tubes, which for the most part have collapsed, leaving only short segments intact. Twenty-two uncollapsed segments have been discovered.

Special management provisions to protect the caves from accelerated erosion, to protect humans from the hazards of tube collapse, and to protect the uncollapsed tubes from surface-disturbing activities include:

- restrict surface-disturbing activities on or contiguous to known or suspected tubes,
- erect roadside barriers and signs where needed to discourage public access to the area, and
• maintain existing roads in order to manage adjacent resources, but construct no new roads.

These restrictions would continue to apply in the portion of the WSA designated an ACEC, whether or not the area is designated wilderness.

Most of the WSA is in the Sand Springs Wild Horse Herd Management Area (HMA). Management objectives call for between 100 and 200 wild horses in the HMA. ODFW conducts an annual census of the herd by aerial surveillance. Once every 4 years the excess portion of the herd is gathered by riders on horseback and helicopter. A trap site is located to the south of the WSA boundary. Since management of wild horses would continue in a similar manner under each alternative, this subject is not discussed further.

The Department of Agriculture would be authorized to aerially shoot coyotes within the WSA and thereby remove a predator that tends to lower the number of kit fox, which is on ODFW’s list of threatened species. Wilderness Management Policy allows for predator control when it is considered necessary to protect threatened and endangered species. Coyotes would be the only predator selected for control. Since predator control would be practiced in a similar manner under each alternative, this subject is not discussed further.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

• impact on the WSA’s wilderness values,
• impact on energy and mineral exploration and development,
• impact on restricted vehicle access to the lava tubes for scientific study and recreational enjoyment,
• impact on the split-estate land,
• impact on the designation of a north-south utility corridor,
• impact on mule deer, crucial antelope winter range, kit fox, Townsend’s big-eared bat and other wildlife species and habitat, and
• impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected, and do not definitely forecast the outcome of site-specific analysis required prior to implementation of any project in a wilderness area.

The following alternatives are analyzed

• all wilderness
• partial
• no wilderness/no action (proposed action)

An enhanced wilderness alternative, which would combine the Saddle Butte WSA with the Lower Owyhee Canyon WSA, is not analyzed because the county road dividing these two WSAs is the only north-south transportation route immediately north of Rome, Oregon, and west of the Owyhee River. The road provides critical access to private and State land, mining claims, range projects and a large area of public lands requiring administration. Acquisition of the mineral estate of six of the eight split-estate parcels is analyzed under the partial alternative.
**All Wilderness**

Under the all wilderness alternative, all 86,300 acres of public land in the Saddle Butte WSA would be recommended suitable as wilderness (see Map 2). For purposes of analysis, it is assumed that the mineral estate of the split-estate parcels would not be acquired.

**Energy and Mineral Development Actions**

Wilderness designation would close 81,380 acres within the WSA to mineral entry. A total of 4,920 acres of split-estate land would be open to mineral exploration and development. Exploration for oil and gas would be prohibited on 81,380 acres. Due to a lack of geologic evidence, no confirmed petroleum-bearing formations, a relatively thick volcanic layer on and/or near the surface, and the absence of any existing mineral leases, only casual non-surface-disturbing exploration (without development) for oil and gas is postulated on the 4,920 acres of split-estate lands.

Exploration for gold and molybdenum would be prohibited on 81,380 acres.

**Wildlife Management Actions**

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife.

**Livestock Management Actions**

Livestock use would remain at the current use level of approximately 1,916 AUMs within the portions of the two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management on 16 miles of ways would be precluded. Management of livestock would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs. This infrequent use would involve 3 miles of ways.

**Utility Corridor Management Actions**

The proposed utility corridor, together with its proposed access road, would be rerouted to the west adding 9.3 miles and resulting in a total length of 21.8 miles. Total surface disturbance from utility corridor construction and maintenance would be approximately 55 acres.

**Recreation Management Actions**

The entire 86,300 acres would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to the existing 16 miles of ways. Current recreational use is estimated to be less than 100 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing ways.

**Partial Wilderness**

This alternative would recommend 61,160 acres suitable as wilderness (see map 3). In addition, an attempt would be made to acquire the mineral estate of six parcels of split-estate lands totaling 3,080 acres. This would be acquired through purchase or exchange with willing owners.

In order to resolve a potential resource conflict between wilderness values and the proposed development of a utility corridor passing through the WSA, a total of 25,140 acres along the eastern boundary of the WSA would be recommended nonsuitable under this alternative. The boundary on the east side would follow legal subdivisions from north to south and exclude a narrow strip of the WSA that varies from 1 to 3 miles in width.

**Energy and Mineral Development Actions**

Wilderness designation would close 61,160 acres to mineral entry including 3,080 acres of split-estate land, assuming the mineral estate is acquired. Exploration for oil and gas would be prohibited on 61,160 acres and exploration for gold and molybdenum would be prohibited on 4,200 acres.

All 25,140 acres of public land recommended as nonsuitable for wilderness would be open to mineral exploration and development. This includes 1,840
acres of split-estate land. Due to a lack of geologic evidence, no confirmed petroleum-bearing formations, a relatively thick volcanic cover on or near the surface and no current mineral leases, only casual non-surface disturbing surface exploration with no development is postulated for oil and gas. Due to a lack of direct evidence indicating favorability, no confirmed deposits and no mining claims, only casual non-surface disturbing exploration for gold and molybdenum without development is postulated on 700 acres in the southeastern corner of the nonsuitable portion of the WSA.

Wildlife Management Actions

Habitat in both the suitable and nonsuitable areas would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife.

Within the nonsuitable area, one guzzler would be installed to provide water for upland game birds and deer.

Livestock Management Actions

Livestock grazing use would continue at the current level of 1,916 AUMs. Within the suitable area, vehicle use of 9 miles of ways for livestock management would be precluded. Management of livestock would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs.

In the nonsuitable area, a well would be drilled and equipped for watering livestock. Seven miles of ways would remain open to motorized vehicles for livestock management.

Utility Corridor Management Actions

The proposed utility corridor would be designated as planned. The current proposal identifies construction of 12.5 miles of 500-kV transmission line and access road through the eastern, nonsuitable portion of the WSA, which would cause a surface disturbance of approximately 30 acres.

Recreation Management Actions

Motorized vehicle use would be precluded on 9 miles of way in the area recommended as suitable. Cross country use of motorized vehicles would continue to be prohibited on 86,300 acres through wilderness designation on 61,160 acres and through a vehicle use designation on the remaining 25,140 acres. Seven miles of ways would remain open to recreation vehicle use in the nonsuitable area. Current recreational use is estimated to be less than 100 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All 86,300 acres of public land, including 4,920 acres of split-estate, would be open to mineral exploration and development. Although no development is projected, any mineral leases on 6,640 acres within the Saddle Butte ACEC (Map 2) would be issued with a no surface occupancy restriction in accordance with the ACEC management provisions identified in Section 1, under Interrelationships.

As the WSA has no confirmed petroleum-bearing formations, a relatively thick volcanic cover at or near the surface and no existing mineral leases, only casual surface exploration with no development is postulated for oil and gas. Due to the lack of direct evidence indicating favorability, no confirmed deposits, and no mining claims, only casual non-surface disturbing exploration with no development is postulated for gold and molybdenum on 4,900 acres with moderate potential for occurrence in the northwestern and southeastern portions of the WSA.

Wildlife Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet
wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plans which ensure sufficient forage and cover for wildlife. Ten guzzlers would be installed to provide water for upland game birds and deer.

Livestock Management Actions

Seven reservoirs and two wells would be constructed, allowing an additional 9,772 AUMs of currently available livestock forage to be allocated. This increase involves the entire WSA plus portions of the pastures extending outside the WSA, since livestock could drift throughout the pastures. The increase would be approximately 4,008 AUMs in the WSA, with the remainder being in portions of the pastures extending outside the WSA.

Vehicle use for livestock management would continue on 16 miles of ways in the WSA. Such use is projected to involve approximately 15 to 20 trips per year to check on livestock developments and to spread salt.

Seven new reservoirs and two wells would be constructed to provide water for, and improve distribution of, livestock.

Utility Corridor Management Actions

The proposed utility corridor could be designated as planned. The current proposal identifies construction of 12.5 miles of 500-kV transmission line through the WSA. Transmission line development would include construction of lattice towers and 12.5 miles of access road for construction and maintenance. Total surface disturbance associated with powerline and access road construction and maintenance would be approximately 30 acres.

Recreation Management Actions

Motorized vehicle use would continue to be restricted to the existing 16 miles of ways. Current recreational use is estimated to be less than 100 visitor days per year. Most of this use utilizes vehicles for access into the area via existing ways.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those activities or resources that influence the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The Saddle Butte WSA exhibits a very high degree of naturalness. The large central portion of the WSA is virtually devoid of any signs of human activity. The Saddle Butte Lava Field is a rough and broken terrain with an expansive panorama and many lava tube caves that provide an unusual natural setting.

Thirteen unnatural features influence less than two percent of the WSA. These features include three reservoirs, four guzzlers and six ways totaling 16 miles.

Outside sights or sounds include military overflights, adjacent ranching and traffic on Highway 78. None of these substantially influence the naturalness of the WSA.

Opportunities for Solitude or Primitive and Unconfined Recreation

The WSA's large size and the exceedingly rough and broken terrain of the Saddle Butte Lava Field provide significant topographic screening and outstanding opportunities for solitude. Plateaus to the north and south of the Saddle Butte Lava Field are generally too flat to provide topographic screening. Little vegetative screening is provided anywhere in the WSA. The limited screening and the narrowness of the northern and northwestern extensions limits opportunities for solitude in these areas.

Outside sights and sounds include military jets on simulated low level bombing runs, traffic on State Highway 78 (southern boundary) and ranching activities at the Clark Ranch (northern boundary) and
Ryegrass Ranch (western boundary). Most of the intrusions upon solitude from outside sights and sounds are brief, or very distant, and do not penetrate far into the WSA.

There are outstanding opportunities for cave exploration in the Saddle Butte WSA. Twenty-two cave segments have been identified and mapped, making the Saddle Butte lava tube system the most extensive yet found in Oregon.

Opportunities for geologic sightseeing are excellent in the lava cave area. Herds of wild horses and wintering pronghorn antelope roam the flatter sections of the WSA and provide excellent opportunities for observing and photographing wildlife. Horseback riding opportunities are considered to be excellent throughout the WSA.

Special Features

The most notable special wilderness feature in the WSA is the extensive system of lava tubes which winds through the Saddle Butte Lava Field. The area has been designated as an ACEC (see Map 2). The system is approximately 8 to 10 miles long and includes at least 22 uncollapsed cave segments. Most of the system lies within the Saddle Butte WSA.

The caves of the Saddle Butte system provide habitat for Townsend's big-eared bat, a Federal candidate for listing under the Endangered Species Act. Populations of this species are limited in size and confine their use to the lava tube caves. The caves provide a habitat with areas of constant temperature and humidity. These unusual conditions promote the growth of mosses and ferns normally considered to be alien to the dry climate and create opportunities for educational and scientific endeavors.

The WSA contains the northernmost habitat of the kit fox, which is on ODFW's list of threatened species (see Map 5).

There are no known cultural sites located within the WSA, however, no thorough inventory has been conducted.

Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush steppe and saltbush-greasewood. Of the plant communities listed in the Owyhee Upland section of the Oregon Natural Heritage Plan, the WSA has a big sagebrush/bluebunch wheatgrass and alkaline vegetation mosaic with representative communities including greasewood, shadscale, saltbush and spiny hopsage.

Boise, Idaho is the only standard metropolitan statistical area with a population over 100,000 within five hours' driving time of the WSA.

Energy and Mineral Development

Energy and mineral resources were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment and rock chip sampling by BLM geologists. Technical details of the findings of the evaluation are in a BLM report, "Assessment of the Saddle Butte Geologic Resource Area."

The WSA is within the Saddle Butte geologic resource area, which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. The energy and mineral classifications for the WSA are shown in Table 3. Map 4 shows where energy and mineral resources have moderate or high potential for occurrence in the WSA.

Surface material found in the Saddle Butte WSA consists predominantly of Quaternary basalt flows and lacustrine sediments. Other exposed rocks consist of Quaternary-Tertiary basalt flows, flow breccias, tuffaceous sediments, Tertiary silicic vent rocks, mafic vent rocks and Quaternary landslide debris. No pre-Tertiary rocks are exposed and the subsurface geology is largely unknown. However, marine sediments may exist at depth.

Energy Resources

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the possible presence of pre-Tertiary marine sediments at depth. However, there has been no deep drilling in the vicinity which has penetrated the Tertiary volcanic cover.
As of October 16, 1987, there were no oil and gas leases in the WSA.

Mineral Resources

No confirmed mineral deposits are found in the WSA. Based upon indirect evidence (e.g. favorable geology and stream sediment samples), 4,900 acres of the WSA are considered to have a moderate potential for the occurrence of gold and molybdenum.

As of October 16, 1987, there were no mining claims in the Saddle Butte WSA.

Utility Corridor

The Bonneville Power Administration (BPA) has under long-term consideration construction of a 500-kV power transmission line through a potential north-south corridor which would cross approximately 12.5 miles of the eastern edge of the Saddle Butte WSA.

Vegetation

Most of the WSA is in a Wyoming big sagebrush/bluebunch community, in a shadscale/saltbush/Indian ricegrass community. Bottlebrush squirreltail and Sandberg's bluegrass are represented in all communities, and patches of greasewood and spiny hopsage occur on more alkali sites. The brush component of the plant community has been removed by fire on the eastern border of the WSA. Most of the vegetation is in mid-seral stage, while small areas are in early and late stages.

There are no known threatened or endangered plant species within the WSA.

Wildlife

The Saddle Butte WSA offers a moderate variety of habitats for game and nongame species typical of the sagebrush steppe, such as coyotes, mule deer, antelope, chukars and mourning doves. As many as 700 head of pronghorn antelope winter in the north end of the unit making it one of the most important big game winter ranges in eastern Oregon. It is also part of the northernmost range of the kit fox (see Map 5), which is a threatened species on the ODFW state list.

The lava breaks, caves and tubes provide habitat for desert woodrats, yellow bellied marmots and bobcats. At least four species of bats have been observed in the WSA including Townsend's big-eared bat, a Federal candidate for listing under the Endangered Species Act.

Four guzzlers to provide water for wildlife have been developed in the WSA.

Watershed

All creeks within the WSA flow intermittently. Tub Spring is the only perennial water source in the WSA. Watershed conditions are relatively good and drainages are stable.

Livestock Grazing

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for grazing by domestic livestock. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) consist of three reservoirs. Large areas within the WSA are not currently available to livestock grazing because of a lack of water.

Livestock operators use motor vehicles on ways in the WSA for reservoir inspection and maintenance, to check on livestock and spread salt. These trips are limited to approximately 15 to 20 per year. Due to topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

The major recreational attraction of the WSA is the lava cave system. Vehicle access to the caves is via a 2.5 mile way entering from the study area's southwestern boundary. Very little hunting occurs within the WSA; some viewing of wild horses occurs.

Even though most of the area outside the lava field would be accessible to off-road vehicles, vehicle use is limited (by ORV designation) to existing roads and ways within the WSA. Present recreational use is estimated at less than 100 visitor days per year.

Local Personal Income

Livestock use at the current level of 1,916 AUMs and recreation use totaling less than 100 visitor days per
year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $23,000 for livestock grazing and $1,000 related to recreation use of the WSA, for an overall total of $24,000. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended Suitable for Wilderness: 86,300 acres
Recommended Nonsuitable for Wilderness: 0 Acres

Impacts on Wilderness Values

All of the WSA would be designated wilderness, and wilderness values within the entire 86,300 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. The special features of the WSA would also be preserved.

Naturalness

The WSA's high degree of naturalness would be protected and enhanced by restriction of motorized vehicle use. The 16 miles of ways, which influence approximately 2,000 acres, would revegetate in two to three growing seasons after they are closed. Three miles of ways in the northern portion of the WSA would receive periodic use every 5 to 10 years in providing access for heavy equipment which would be used to maintain three reservoirs. This infrequent amount of use would not prevent these ways from revegetating.

Solitude

Opportunities for solitude provided by the area's large size, lack of roads and ways, and rugged lava flows would be maintained. The area provides a large core area for people to hike into and experience solitude with no disturbance from vehicle use. Opportunities for solitude would be enhanced through the elimination of motorized vehicle use of 16 miles of ways. Temporary disruption of solitude would occur every 5-10 years due to the use of heavy equipment for maintaining reservoirs.

Primitive and Unconfined Recreation

Closure of 16 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography, sightseeing and spelunking would improve with the removal of vehicles and the rehabilitation of the ways. Primitive and unconfined recreation would be disturbed every 5-10 years by heavy equipment maintenance of reservoirs. Overall, a more natural, primitive, wild setting would be provided.

Special Features

Closure of the access way to the lava tubes would cause a slight decrease in use which would help preserve the caves and reduce harassment of cave-dwelling wildlife, including Townsend's big-eared bat, a Federal candidate for listing under the Endangered Species Act and kit fox, which is on ODFW's list of threatened species. Eliminating motorized vehicle use on the 16 miles of ways would reduce minor seasonal disturbance of wildlife, including kit fox, antelope and mule deer. Opportunities for educational and scientific endeavors in the lava tubes would also be preserved although there would be some inconvenience due to the closure of a way that provides access to them.

Conclusion: Wilderness designation of the entire 86,300 acres within the Saddle Butte WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 81,380 acres within the WSA to mineral entry. The 4,920 acres of split-estate land would be open to mineral exploration and development.
Energy Development

Exploration for oil and gas would be precluded on 81,380 acres. Exploration could occur on 4,920 acres of split-estate land. However, due to the lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is projected.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration for minerals, including gold and molybdenum on 4,200 acres, would be precluded on the 81,380 acres recommended suitable for wilderness. Only casual exploration (without development) is expected on these lands due to a lack of sufficient geologic evidence to support an extensive exploration and development program. Exploration could occur on 4,920 acres of split-estate land. As no minerals have been identified that would justify exploration, no mineral exploration or development is expected on the 4,920 acres of split-estate land.

Conclusion: No impact to mineral development is expected.

Impacts on Utility Corridor Routing and Development

Wilderness designation would prohibit utility corridor development within the WSA. The utility corridor would be rerouted to the west, outside the WSA, adding approximately 9.3 miles to the corridor's length and increasing the cost of construction and maintenance.

Conclusion: The north-south corridor would be rerouted to the west of the WSA, adding 9.3 miles to the corridor's length and increasing the cost of construction and maintenance.

Impacts on Vegetation

Little or no change would take place to vegetation over most of the area. The existing ways would become revegetated within two to three growing seasons.

Conclusion: Little or no change would occur to vegetation in the WSA.

Impacts on Wildlife

Wildlife habitat and populations of other species would be maintained at natural levels in accordance with ODFW management goals. These goals would be achieved by way of allotment management plans, wildlife habitat management plans and land use plan adjustments which ensure sufficient forage and cover for wildlife. Construction of 10 guzzlers to improve upland game bird and deer populations would be forgone.

Conclusion: Wildlife habitat and populations would be maintained on 81,380 acres designated wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,916 AUMs. Wilderness designation of the entire WSA would preclude the allocation of 9,772 AUMs of currently available but unallocated forage in affected pastures, because of the potential adverse impacts upon the area's naturalness. An additional allocation of 9,772 AUMs would cause greater utilization of existing vegetation resulting in a more grazed appearance, less residual ground cover and increased trampling. Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management on 16 miles of ways would be precluded under wilderness designation, resulting in inconvenience and slight additional expense to livestock operators. Much of the area is presently inaccessible and livestock management is currently accomplished on horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of three existing reservoirs.

Conclusion: An increased allocation of 9,772 AUMs to currently available forage would be foregone. Vehicle use of 16 miles of ways would be precluded, causing inconvenience and slight increased costs to livestock operators.

Impacts on Recreation Use

Vehicular access to the lava tube caves would be eliminated due to the closing of the ways, causing spelunkers to hike at least 2.5 miles. This would cause a decrease in recreational use of the caves. Closing of the 16 miles of ways would eliminate vehicle-oriented recreational use of the area. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation
opportunities, increased visitation from wilderness users would nearly offset the decreases in vehicle-oriented recreational use. Recreational use of the area, which is estimated at less than 100 visitor days per year, would be slightly reduced.

**Conclusion:** The area's recreational use level of less than 100 visitor days per year would be slightly reduced. Wilderness designation would result in a change to primitive, non-motorized forms of recreational use.

**Impacts on Local Personal Income**

Livestock grazing would remain at 1,916 AUMs. Overall recreation use would decrease by approximately 10 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net decrease of approximately $100 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would decrease by approximately $100.

**Partial Wilderness**

Recommended suitable for wilderness: 61,160 acres
Recommended nonsuitable for wilderness: 25,140 acres

**Impacts on Wilderness Values**

Partial wilderness would add 61,160 acres to the NWPS. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved on that portion of the WSA. The WSA's special features would also be protected. The acquisition of 3,080 acres of split-estate would further preserve wilderness values.

On the 25,140 acres not designated wilderness, wilderness values would not receive special legislative protection. These values would be subject to the effects of projected management actions, which include development of a utility corridor, construction of one wildlife guzzler and one well, and casual mineral exploration activities.

**Naturalness**

Designation as wilderness would protect the naturalness on 61,160 acres. Closure of 9 miles of ways, which influence approximately 1,100 acres, would allow the ways to revegetate within two to three growing seasons.

Naturalness on the 25,140 acres recommended nonsuitable would be reduced by the projected development of 12.5 miles of 500-kV power line and access road along the eastern edge of the WSA which would cause approximately 30 acres of surface disturbance and visually disturb approximately 3,100 acres. In addition, the construction of one guzzler would cause a surface disturbance of approximately one acre and visually disturb approximately 35 acres, and the construction of one well would cause a surface disturbance of approximately one acre and visually disturb approximately 25 acres. These activities would cause a total surface disturbance of approximately 32 acres and visually impair naturalness on approximately 3,160 acres.

**Solitude**

On the 61,160 acres recommended suitable for wilderness, opportunities for solitude would improve through the elimination of motorized vehicle use on 9 miles of ways and preclusion of casual mineral exploration activities on the 3,080 acres of split-estate land. Periodic disturbance of solitude would occur from 3 miles of cross-country maintenance of two reservoirs using heavy equipment every 5-10 years.

Opportunities for solitude would be degraded on the 25,140 acres recommended nonsuitable by projected casual mineral exploration activities. Short-term disruption of solitude would result from construction of the powerline and 12.5 miles of associated roads, a guzzler and a well. Motorized vehicle use on the existing 7 miles of ways would continue to impair opportunities for solitude adjacent to the activity.

**Primitive and Unconfined Recreation**

Closure of 9 miles of ways to motorized vehicle use in the suitable area would increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. A more primitive, natural, wild setting would be provided. Primitive and unconfined recreation would be disturbed every 5-10 years by heavy equipment maintenance of reservoirs. These opportunities would be reduced within the area recommended nonsuitable through motorized vehicle use on 7 miles of ways, casual exploration for energy and mineral resources and the development of 12.5 miles of 500-kV powerline.
Special Features

The impact to special features would be the same as the all wilderness alternative on the 61,160 acres designated as wilderness. Acquisition of 3,080 acres of mineral estate would prevent mineral entry and projected exploration. The elimination of motorized vehicle use on 9 miles of ways and the absence of any need for motorized access to the mineral estate would prevent any scarring and erosion of unique land forms, or disruption to the area’s wildlife, including Townsend’s big-eared bat, wintering antelope and kit fox.

The portion of the WSA recommended nonsuitable (25,140 acres) would be affected by casual mineral exploration, motorized vehicle use on 7 miles of ways and the construction of 12.5 miles of 500-kV powerline. Special features, including kit fox, crucial antelope winter range and Townsend’s big-eared bat would continue to be subject to harassment and disturbance from continued motorized vehicle use on 7 miles of ways. Completion of the 12.5 miles of 500-kV powerline would cross a short segment of the lava formations and cause minor damage during construction and development of access roads.

Conclusion: Wilderness designation of 61,160 acres within the Saddle Butte WSA would protect and enhance existing wilderness values. Wilderness values on the 25,140 acres recommended nonsuitable would be impaired, both directly and indirectly, over approximately 3,200 acres with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

Wilderness designation would close 61,160 acres to mineral entry, including 3,080 acres of acquired mineral estate. A total of 25,140 acres of public land would be open to mineral exploration and development.

Energy Development

Exploration for oil and gas would be precluded on 61,160 acres. Exploration could occur on the 25,140 acres recommended nonsuitable. However, due to the lack of sufficient geologic evidence to justify an extensive exploration/development program either inside or outside the suitable area, only casual surface exploration (without development) is projected.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration for minerals, including gold and molybdenum on 4,200 acres, would be precluded on the 61,160 acres recommended suitable for wilderness.

Exploration could occur on the 25,140 acres recommended nonsuitable for wilderness. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual surface exploration (without development) for gold and molybdenum. As no other minerals have been identified that would justify exploration on the remaining 24,440 acres, no other mineral activity is projected.

Conclusion: No impact to mineral development is expected.

Impacts on Utility Corridor

The partial wilderness alternative would allow for the location of a utility corridor across 12.5 miles on the eastern edge of the nonsuitable portion of the WSA as planned. Costs for construction and annual maintenance of the projected 500-kV powerline would not be increased since rerouting, and the associated added miles of powerline, would be unnecessary.

Conclusion: The proposed north-south utility corridor would be designated in the eastern portion of the WSA and the 500-kV powerline could be constructed in the corridor as planned.

Impacts on Vegetation

Impacts would be the same as the all wilderness alternative in the suitable area. Nine miles of ways would become revegetated. In the nonsuitable area, projected utility corridor development would directly disturb 30 acres of vegetation as pads would be constructed and a 12.5-mile access road developed and maintained. Construction of one well and one guzzler would together cause a direct surface disturbance to approximately two acres.

Conclusion: Overall little or no change would occur to vegetation in the suitable area. Nine miles of ways would revegetate. In the nonsuitable area, vegetation would be permanently removed on approximately 32 acres.

Impacts on Wildlife

Wildlife goals would be achieved in both the suitable and nonsuitable areas by way of allotment
management plans, wildlife habitat management plans and land use plan adjustments which ensure sufficient forage and cover for wildlife.

Within the 25,140-acre area recommended non-suitable, construction of one guzzler and one well would increase upland game bird and deer populations limited by water distribution and provide a survival water source for their use in times of drought. Human activity in the utility corridor would locally disturb all species of wildlife in an area that has previously received little human use. Powerline and access road construction would directly alter habitat on 30 acres.

Conclusion: Wildlife habitat and populations would be maintained on 61,160 acres designated wilderness. Wildlife habitat would be altered on 30 acres.

Impacts on Livestock Grazing

In the area recommended suitable, livestock use would continue at the current level of 1,916 AUMs. Wilderness designation would preclude the allocation of 9,772 AUMs of currently available but unallocated forage in affected pastures because construction of seven reservoirs and one well to allow the livestock to utilize the forage would be precluded. Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management on 9 miles of ways would be precluded in the suitable area, resulting in an inconvenience and slight additional expense to livestock operators. Much of the area is presently inaccessible, and livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs. This periodic, infrequent use would involve 3 miles of ways.

In the nonsuitable portion, one well would be constructed to improve livestock distribution. Livestock operators would continue to use vehicles on 7 miles of ways to manage their herds.

Conclusion: A potential allocation increase of 9,772 AUMs would be foregone. Vehicle use of 9 miles of ways would be precluded, causing inconvenience and increased costs to livestock operators.

Impacts on Recreation Use

Under this alternative, there would be a decrease in recreational opportunities dependent on motorized access and increased opportunities for primitive and unconfined recreation in the suitable area. As the public becomes aware of the area's wilderness qualities and primitive recreation opportunities, increased visitation from wilderness users would offset decreases in motorized recreational use. The construction of a wildlife guzzler in the nonsuitable portion would improve conditions for upland game birds and deer, resulting in a slight increase in hunting opportunities.

Conclusion: Levels of recreation use would remain relatively stable at less than 100 visitor days per year, although types of recreation use would shift from motorized to non-motorized in the suitable portion and would remain unchanged within the nonsuitable area.

Impacts on Local Personal Income

Livestock grazing would remain at 1,916 AUMs. Overall recreation use would remain at approximately 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $24,000.

No Wilderness/No Action (Proposed Action)

Recommended Suitable for Wilderness: 0 acres
Recommended Nonsuitable for Wilderness: 86,300 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 86,300-acre WSA would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, and the area's special features including unique lava formations, tube caves and their unusual vegetative and animal communities, would not be protected outside of the existing Saddle Butte Lava Tubes ACEC boundary (the ACEC contains 7,040 acres). Projected actions include casual mineral exploration, continued motorized vehicle use for recreation and livestock management, and facility inspection/maintenance on 16 miles of ways. Ten guzzlers for wildlife, seven livestock reservoirs, two wells and 12.5 miles of 500-kV powerline, together
with an equal length of access road, would also be constructed. An additional 4,008 AUMs of livestock forage that is currently available within the WSA would be allocated.

**Naturalness**

Increased vehicle use on 16 miles of ways would increase the impact of vehicle tracks upon naturalness influencing, approximately 2,000 acres (2 percent of the WSA).

The allocation of an additional 4,008 AUMs within the WSA would increase trampling around water sources and increase utilization of forage resulting in a more grazed appearance with less residual ground cover.

Construction of 12.5 miles of 500-kV powerline would cause a surface disturbance of approximately 30 acres and visually disturb approximately 3,100 acres. In addition, the construction of seven reservoirs would cause a surface disturbance of approximately 10 acres and visually disturb 580 acres. The construction of 10 guzzlers would cause a surface disturbance of approximately eight acres and visually disturb approximately 350 acres. The construction of two wells would cause a surface disturbance of approximately two acres and visually disturb approximately 50 acres. All of these construction projects together would result in approximately 50 acres of surface disturbance and would visually influence approximately 4,080 acres (five percent of the WSA).

**Solitude**

Increased vehicle use on 16 miles of ways mainly during the hunting season, would increase impairment of solitude opportunities adjacent to the activity. Short-term impacts would occur during construction and maintenance activities on the seven reservoirs, 10 guzzlers, two wells and 12.5 miles of powerline.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 16 miles of ways within the WSA and all boundary roads.

Both mineral exploration and an allocation of 4,008 additional AUMs in grazing use would reduce primitive recreation opportunities in the WSA. Additional livestock or longer periods of grazing would increase vegetation removal and trampling, especially in the areas of livestock concentration around water which is a place where recreationists also concentrate. Construction of the seven reservoirs, 10 guzzlers and two wells would improve opportunities for upland game bird hunting and bird watching. Construction of a 500-kV powerline over 12.5 miles along with an access road for building and maintenance would permanently degrade opportunities for primitive recreation.

**Special Features**

Increased vehicle use of the existing ways would increase seasonal disturbance to vegetative habitats and special feature wildlife, including wintering antelope and kit fox. Construction of the 12.5 miles of 500-kV powerline would disturb approximately one acre of the lava flow along a 2 mile length.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 4,080 acres (five percent) of the WSA with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

All of the 86,300 acres of public land in the WSA would be open to mineral exploration and development. Mineral leases on 6,840 acres within the ACEC would have no surface occupancy restrictions.

**Energy Development**

Casual exploration for oil and gas is expected. An extensive exploration/development program is not anticipated due to a lack of sufficient geologic evidence to justify it.

**Conclusion:** There would be no impact on energy development in the WSA.

**Mineral Development**

Casual exploration for gold and molybdenum on 4,900 acres is expected. A major exploration/development program, however, is not anticipated due to the lack of sufficient geologic evidence to support it.

**Conclusion:** There would be no impact on mineral development in the WSA.
Impacts on Utility Corridor Routing

The no wilderness alternative would allow for the location of a utility corridor across 12.5 miles on the eastern edge of the WSA, as planned. Costs for construction and annual maintenance of the projected 500-kV powerline would not be increased since rerouting and associated added miles of powerline would be unnecessary.

Conclusion: The proposed north-south utility corridor would be designated in the eastern portion of the WSA and the 500-kV powerline could be constructed as planned.

Impacts on Vegetation

Utilization of key forage species would increase from 20 percent to approximately 50 percent as a result of allocating 4,008 AUMs of forage currently available but not presently allocated within the WSA. However, little or no change would take place to vegetative composition or ecological status on most of the WSA because of the additional grazing would take place in late summer, fall and winter when grazing impacts to species survival and vigor are minimal. Reservoir and well construction would directly disturb 15 acres of vegetation. Forage removal in the vicinity of the reservoirs and wells may be as high as 80 to 90 percent of current year's growth. On a broader scale, there will be a corresponding decrease in residual ground cover and a more grazed appearance. Construction of the utility corridor would directly disturb vegetation on 30 acres.

Conclusion: Little change would take place to vegetative composition or ecological condition on most of the WSA. Utilization of key forage species would increase, resulting in a more grazed appearance. Direct disturbance to 50 acres of vegetation would occur from reservoir, well and utility corridor development.

Impacts on Wildlife

Construction of 10 guzzlers, seven reservoirs and two wells would increase upland game bird, antelope and deer populations limited by water distribution and provide a survival water source for their use in times of drought. Human activity in the 12.5-mile utility corridor would locally disturb all species of wildlife in an area which has previously received little human use. Grazing increases would not alter wildlife populations since wildlife forage and cover needs would be maintained in allotment management plans through land use plan adjustments which ensure sufficient forage and cover for wildlife.

Conclusion: Upland game bird, antelope and deer populations limited by water would increase with the addition of 10 new guzzlers, seven reservoirs and two wells. Wildlife habitat would be altered through surface disturbance on 50 acres.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated resulting in a total increase in livestock forage allocation of 9,772 AUMs within the affected pastures. Approximately 4,008 of the AUM increase would be within the WSA. Vehicle use for livestock management involving 15-20 trips per year would continue on 16 miles of ways. Seven new reservoirs and two wells would be constructed which would improve livestock distribution, thereby improving overall rangeland condition.

Conclusion: An increase of 9,772 AUMs of currently available but unallocated forage would be allocated in and around the WSA. The construction of seven new reservoirs and two wells would enhance livestock distribution. Vehicle use for livestock management and facility maintenance would continue on 16 miles of ways.

Impacts on Recreation Use

Existing vehicle-oriented recreational use would continue. A moderate increase in hunting would be expected as a result of wildlife population growth due to the installation of guzzlers, reservoirs and wells. The expected trend would be an increase in overall recreation usage to approximately 150 visitor days per year.

Conclusion: There would be an increase in overall recreation use to approximately 150 visitor days per year due to improved hunting opportunities.

Impacts on Local Personal Income

Livestock grazing would increase by 9,772 AUMs. Overall recreation use would increase to approximately 150 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of approximately $118,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $118,000.
Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), projected powerline, range and wildlife development activities would lead to unavoidable adverse impacts to wilderness values as a result of 50 acres of surface disturbance which visually influence approximately 4,080 acres. A projected increase in motorized vehicle use on 16 miles of ways, primarily for hunting, would impair wilderness values.

Relationship Between Short-Term Uses and Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, all short-term uses would continue and future development options, including mineral exploration and powerline development, would remain open. Long-term productivity of wilderness values would be directly lost on approximately 50 acres from surface disturbance and indirectly lost on approximately 4,080 acres from visual disturbance due to range and wildlife projects and utility corridor development. Further declines in wilderness values due to other uses would be expected over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, projected range, wildlife and powerline developments would result in an irreversible commitment of the wilderness resource on 50 acres directly, with the natural character of the WSA compromised on approximately 4,080 acres from the visual influence of these developments.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The Saddle Butte WSA would be manageable as wilderness because of its large size, solid configuration and high degree of naturalness. Manageability would be improved if the mineral estate of the split-estate state lands were acquired. The acquisitions would prevent potential adverse effects from access to, and incompatible surface disturbing activities on, these parcels.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action because of the major benefits to be gained from allowing the proposed projects and activities. They include the construction of seven reservoirs and two wells to improve livestock distribution and an increased level of livestock use by almost 9,800 AUMs; construction of 10 guzzlers to enhance populations of deer, kit fox and upland game birds; possible construction of 12.5 miles of 500-kV powerline and continued vehicle access to the area by recreationists and ranchers on 16 miles of ways. Special features of the WSA's wilderness values associated with the lava tube caves are protected by ACEC designation. None of the projects under the recommended action would impact the ACEC.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Why is it stated that ODFW would be able to continue their annual aerial census of antelope under the no-wilderness designation? We are aware of no law prohibiting ODFW from flying over wilderness areas. Response: You are correct in stating that there is no law prohibiting flights over wilderness areas. Regardless of the specific wilderness designation, aerial censuses would continue to be permitted.
<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Partial</th>
<th>Proposed Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>86,300</td>
<td>61,160</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>86,300</td>
<td>61,160</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>0</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>16</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired²</td>
<td>0</td>
<td>3,080</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>81,380</td>
<td>58,080</td>
<td>0</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated within the WSA (AUMs)</td>
<td>0</td>
<td>0</td>
<td>4,008</td>
</tr>
<tr>
<td>Structural Wildlife Projects Developed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catchments and Guzzlers (number)</td>
<td>0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs (number)</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Wells (number)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Miles Added to Potential Utility Corridor</td>
<td>9.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Utility Corridor Development in the WSA</td>
<td>0</td>
<td>12.5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

¹Except for 16 miles of ways, most of the acreage shown is already closed to cross-country vehicle use through a “limited” ORV designation.

²Upon acquisition of the mineral estate, these lands would be withdrawn from mineral location and leasing.
### Table 2. Summary of Environmental Consequences of Alternatives, Saddle Butte WSA (OR-3-111)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Partial</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire 86,300 acres within the WSA would result in the protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation would protect and enhance wilderness values on 61,160 acres. Wilderness values on the 25,140 acres recommended nonsuitable would be impaired over approximately 3,200 acres with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would impair wilderness values over approximately 4,060 acres with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy and mineral development is expected.</td>
<td>No impact to energy and mineral development is expected.</td>
<td>No impact to energy and mineral development is expected.</td>
</tr>
<tr>
<td>Utility Corridor Routing</td>
<td>The route of potential utility corridor would be relocated to the west of the WSA, adding 9.3 miles to its length and increasing construction and annual costs.</td>
<td>The utility corridor could be routed as proposed.</td>
<td>The utility corridor could be routed as proposed.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Little or no change would occur to vegetation. Sixteen miles of ways would revegetate in two to three growing seasons.</td>
<td>Little or no change to would occur to vegetation. Nine miles of ways would revegetate in two to three growing seasons.</td>
<td>Little change would occur to overall vegetation. Utilization of forage species would increase. Vegetation would be disturbed on 50 acres.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Populations of upland game birds and other wildlife species would be maintained at natural levels.</td>
<td>Upland game bird, antelope and deer populations would increase slightly, due to the construction of one guzzler. Wildlife habitat would be altered on 30 acres.</td>
<td>Upland game bird, antelope and deer populations would increase due to the construction of 10 guzzlers, seven reservoirs and two wells. Wildlife habitat would be altered on 50 acres.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>An increase of 9,772 AUMs of currently available forage would be foregone. Vehicle use of 16 miles of ways would be precluded, causing inconvenience and a slight increased cost to livestock operators.</td>
<td>An increase of 9,772 AUMs of currently available forage would be foregone. Vehicle use of 9 miles of ways would be precluded, causing inconvenience and a slight increased cost to livestock operators.</td>
<td>An increased allocation of 9,772 AUMs would occur. Construction of seven reservoirs and two wells would enhance livestock distribution. Vehicle use by operators would continue on 16 miles of ways.</td>
</tr>
<tr>
<td>Recreation</td>
<td>The area's recreation use level of less than 100 visitor days per year would be slightly reduced. Wilderness designation would result in a change to primitive, non-motorized recreation use.</td>
<td>The area's recreation use level of less than 100 visitor days per year would remain stable, although the type of recreation use would shift from motorized to non-motorized in the suitable portion and remain unchanged in the nonsuitable portion.</td>
<td>There would be a slight increase in visitor days to approximately 150 VD per year due to improved opportunities for hunting.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would decrease by approximately $100.</td>
<td>Annual local personal income would remain at approximately $24,000.</td>
<td>Annual local personal income would increase by approximately $118,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Saddle Butte WSA (OR-3-111)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, molybdenum</td>
<td>See map 4</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Gold</td>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Part of area (not shown on)</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite, Diatomite, Zeolites</td>
<td>Part of area (not shown on)</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Saddle Butte WSA (OR-3-111)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.¹</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saddle Butte (0805)</td>
<td>3,949</td>
<td>11/01-03/31</td>
<td>42</td>
<td>1,659</td>
</tr>
<tr>
<td>Sheepshead (0701)</td>
<td>6,426</td>
<td>04/01-03/31</td>
<td>4</td>
<td>257</td>
</tr>
<tr>
<td>Total</td>
<td>10,375</td>
<td></td>
<td></td>
<td>1,916</td>
</tr>
</tbody>
</table>

¹In 1984 the Sheepshead allotment was realigned and the Barren Valley Community allotment was divided to create a more manageable unit.
Table 5. Effects of Alternatives on Local Personal Income, Saddle Butte WSA (OR-3-111) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>Proposed Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>+9,772</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>-10</td>
<td>No change</td>
<td>+50</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td><strong>PROJECTED OUTPUT CHANGES</strong></td>
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<tr>
<td>Livestock Grazing</td>
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<td>0</td>
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<td>+117,000</td>
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<tr>
<td>Recreation Use</td>
<td>$</td>
<td>-120</td>
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<td>+600</td>
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<tr>
<td>Total</td>
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<td>-120</td>
<td>0</td>
<td>+117,600</td>
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</table>
LEGEND

- Saddle Butte WSA
- Other WSA's

U.S. Department of the Interior
Bureau of Land Management
Vale District
Saddle Butte WSA
OR-3-111

LOCATION MAP

SOUTHERN MALHEUR PLANNING AREA

MAP 1
U.S. Department of the Interior
Bureau of Land Management
Vale District

Saddle Butte WSA
OR-3-111

PARTIAL ALTERNATIVE
Saddle Butte WSA, OR-3-111. Southwestern portion of the WSA looking north across lava fields toward Saddle Butte. Within area recommended suitable under the partial alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Saddle Butte WSA, OR-3-111. Southwestern portion of the WSA looking southeast showing a small playa surface. Within area recommended suitable under the partial alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Bowden Hills Wilderness Study Area (OR-3-118)

1. Introduction

General Description of Study Area

The Bowden Hills Wilderness Study Area (WSA) is located along U.S. Highway 95, in Malheur County, approximately 36 miles north of McDermitt, Nevada (see Map 1). The WSA contains 59,900 acres of public land (see Map 2). Seven parcels of split-estate lands, totaling 3,760 acres, are scattered throughout the WSA.

The WSA is roughly square in shape, about 11 miles long and 10 miles wide, and is bordered mostly by Bureau of Land Management (BLM) and Malheur County gravel roads. U.S. Highway 95 forms about 4 miles of the southwestern boundary and fenced seedings border portions of the southern and south-eastern edges. A dead-end gravel road extends approximately 5 miles into the north-central portion of the WSA forming a part of the boundary. One-quarter mile of the northeastern tip of the WSA adjoins private lands of the Bowden Ranch. All other adjoining lands are public.

Topography in the WSA consists of low rolling hills running north and south, and associated benches and shallow valleys. A large flat lies along the northwestern edge of the WSA. The eastern portion contains higher ridges and prominent rims. Surface water flows to the north, west and east via a number of small drainages. No perennial streams or springs exist. Vegetation is typically a mixture of sagebrush and bunchgrass.

Interrelationships

The rights-of-way for U.S. Highway 95 and for a power transmission line lie side by side along the southwestern WSA boundary. Portions of three Oregon State Highway Division material site rights-of-way lie just inside the southwestern boundary of the WSA.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Owyhee Wildlife Unit which contains 3,026 square miles of land area. The WSA supports summer populations of approximately 40 mule deer and 50 pronghorn antelope. As many as 200 mule deer and 400 pronghorn antelope winter in the area. ODFW manages the Owyhee Unit to produce 20 bucks per 100 does of antelope and 15 bucks per 100 does of mule deer. The area provides habitat for the kit fox, which is on ODFW’s list of threatened species. The Department’s goal for threatened species is to restore animal numbers and distributions to a point where listing is no longer necessary. The proposed action for this WSA exceeds ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory study, and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on development of a powerline in a potential north-south utility corridor,
- impact on energy and mineral exploration and development,
- impact on use of one interior dead-end road,
- impact on mule deer, antelope, kit fox and other wildlife species,
2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981), professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- partial wilderness
- no wilderness/no action (proposed action).

An enhanced wilderness alternative is not analyzed specifically. However, actions which have the effect of enhancing wilderness values have been incorporated into the partial wilderness alternative and are analyzed under that heading. These actions include the acquisition of the mineral estates on six of the seven parcels of split-estate lands (3,160 acres out of 3,760 acres) and closure of the 5 mile dead-end road.

All Wilderness

Under the all wilderness alternative, 59,900 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, it is assumed the mineral estate of the split-estate parcels would not be acquired, the 5-mile long dead-end road would remain open and 19 miles of ways would be closed.

Energy and Mineral Development

Wilderness designation would close 56,140 acres within the WSA to mineral entry. A total of 3,760 acres of split-estate land would be open to mineral exploration and development.

Exploration for energy resources, including geothermal resources (which have a moderate potential for occurrence on 6,220 acres in the southwestern portion of the WSA), and oil and gas (which has a moderate potential for occurrence), would be prohibited on 56,140 acres. Exploration for geothermal resources is postulated to occur on the 480 acre parcel of split-estate land in the southwestern portion of the WSA. This effort would most likely consist of geologic mapping, and geophysical surveys (resistivity, gravity, magneto telluric, etc.) followed by the drilling of a 4,000-foot geothermal gradient well. Total surface disturbance is postulated to be 0.25 acre. As an existing way would be used for access, no new roads would be constructed.

As there are no structures or developments in the WSA that could use geothermal energy as a direct heat source, and the discovery of thermal waters hot enough for the generation of electricity is not expected, no development of the geothermal resource is projected.

Due to the lack of direct geologic evidence indicating favorability, absence of confirmed petroleum bearing formations, and an extensive and relatively thick volcanic cover, only casual exploration with no development is projected for oil and gas on the 3,760 acres of split-estate land.

Due to a lack of direct geologic evidence indicating favorability, no known deposits, and an absence of existing mining claims, only casual exploration without development is projected for gold, which has a moderate potential for occurrence on 1,770 acres in the northwestern portion of the WSA.

Total surface disturbance resulting from energy and mineral exploration is postulated to be 0.5 acre, with no new road construction.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan update which ensure sufficient forage and cover for wildlife. No wildlife projects are projected.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,584 AUMs within the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for livestock management on 19 miles of ways would be precluded. Management of livestock and maintenance of 5 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain four reservoirs.

Utility Corridor Routing

The proposed utility corridor, together with its access road, would be rerouted to the west of the WSA adding 2 miles to the length of the corridor.

Recreation Management Actions

The entire 59,900 acres would be closed to motorized vehicle use. Present vehicle use is limited by vehicle designation to the 19 miles of existing ways. Current recreational use is estimated to be less than 100 visitor days per year. Most of the current use utilizes vehicles for access into the area via the existing ways.

Partial Wilderness

Under the partial alternative, 45,260 acres of public land along the western edge of the WSA would be recommended as wilderness. The area encompasses much of the flat terrain lying along the WSA’s northwestern edge. Also included are some low hills in the WSA’s southwestern corner (see Map 3). This nonsuitable portion includes two reservoirs, 8 miles of ways and most of the WSA affected by outside sights and sounds emanating from U.S. Highway 95 and the western half of the southern boundary road. Part of the area recommended nonsuitable has been identified as having a moderate potential for the occurrence of geothermal energy and falls within the proposed utility corridor.

The resultant western boundary of the WSA would follow legal subdivision lines as indicated on Map 3.

Energy and Mineral Development Actions

Wilderness designation would close 42,100 acres within the WSA to mineral entry. An additional 3,160 acres of split-estate land would be withdrawn from mineral entry when the mineral estate is acquired. A total of 14,040 acres of public land and 600 acres of split-estate land recommended as nonsuitable for wilderness designation would be open to mineral entry.

Exploration for energy resources, including geothermal resources (which have a moderate potential for occurrence on 1,200 acres in the southwestern portion of the WSA designated suitable) and oil and gas (which has a moderate potential for occurrence), would be prohibited on 45,260 acres. Exploration for geothermal resources is projected to occur on 5,020 acres in the southwestern corner of the nonsuitable portion of the WSA. This effort would most likely consist of geologic mapping and geophysical surveys (resistivity, gravity, magneto telluric, etc.) followed by the drilling of a 4,000-foot geothermal temperature well. Total surface disturbance is postulated to be 0.25 acres. As an existing way would be used for access, no new roads would be constructed. As there are no structures or developments in the WSA that could use geothermal energy as a direct heat source, and the discovery of thermal waters hot enough for the generation of electricity is not expected, no development of the geothermal resource is projected.

Due to the lack of direct geologic evidence indicating favorability, absence of confirmed petroleum-bearing formations, an extensive and relatively thick volcanic cover, and no mineral leases, only casual exploration with no development is projected for oil and gas in the nonsuitable portion of the WSA.
Exploration for mineral resources (including gold which has a moderate potential for occurrence on 1,650 acres in the northern portion of the WSA recommended suitable) would be prohibited on 45,260 acres. Due to a lack of direct evidence indicating favorability, a lack of known deposits, and no mining claims, only casual exploration with no development is projected for gold on 120 acres in the northern corner of the nonsuitable portion of the WSA.

Total surface disturbance resulting from energy and mineral exploration is projected to be 0.25 acres. No new road construction is projected.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and within the suitable portion, in a manner consistent with the BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are expected.

Livestock Management Actions

Livestock grazing use would continue at the current level of 1,584 AUMs in the portions of two allotments in the WSA. The season of use would remain as identified in Table 4 for the two allotments. Vehicle use for day-to-day livestock management on 11 miles of ways and 5 miles of road would be precluded. Management of livestock and maintenance of 5 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain four reservoirs.

Utility Corridor Routing

The proposed utility corridor would be designated as planned. The current proposal identifies construction of 6 miles of transmission line and access road through the western, nonsuitable portion of the WSA.

Recreation Management Actions

A total of 45,260 acres recommended suitable under this alternative, would be closed to motorized vehicle use. Present vehicle use is limited by vehicle designation to the existing 5 mile road and 11 miles of existing ways, all of which would be closed. Current recreational use is estimated to be less than 100 visitor days per year. Most of the current use utilizes vehicles for access into the area via the existing road and ways.

No Wilderness/No Action (Proposed Action)

Under no wilderness/no action alternative the entire WSA would be recommended nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 56,140 acres of public land in the WSA would be open to mineral entry. In addition, 3,760 acres of split-estate land would be open to mineral exploration and development.

Exploration for geothermal resources (which have a high potential for occurrence) is expected to occur on 6,220 acres in the southwestern portion of the WSA. This effort would most likely consist of geologic mapping and geophysical surveys (gravity, resistivity, magneto telluric, etc.), followed by the drilling of two 4,000-foot deep geothermal temperature wells. The resulting surface disturbance is postulated to total approximately 0.5 acres. As both sites would be located near existing ways, no new road construction would be necessary. As there are no structures or developments in the WSA that could use geothermal energy as a direct heat source, and the discovery of thermal waters hot enough for the generation of electricity is not expected, no development of the geothermal resource is projected.

Due to the lack of direct geologic evidence indicating favorability, the absence of confirmed petroleum-bearing formations, an extensive and relatively thick volcanic cover, and an absence of mineral leases, only casual exploration with no development is postulated for oil and gas (which have a moderate potential for occurrence).
Due to a lack of direct geologic evidence indicating favorability, no known deposits, and an absence of existing mining claims, only casual exploration without development is projected for gold, which has a moderate potential for occurrence on 1,770 acres in the northwestern portion of the WSA.

Total surface disturbance resulting from energy and mineral exploration is postulated to be 0.5 acre, with no new road construction.

**Wildlife Habitat Management Actions**

Habitat would be managed to increase existing wildlife populations by installing one guzzler to benefit deer, antelope and kit fox populations. Habitat would also be managed through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. Construction of the guzzler would disturb approximately 0.25 acre.

**Utility Corridor Routing**

The proposed utility corridor would be designated as planned.

**Livestock Management Actions**

An additional 1,870 AUMs of livestock forage currently available but unallocated would be allocated to livestock. This increase involves the entire WSA plus portions of the pastures extending outside the WSA, since livestock could drift throughout the pastures. The increase would be approximately 1,440 AUMs in the WSA, with the remainder being in portions of the pastures extending outside the WSA.

Vehicle use for livestock management and maintenance of the 5 miles of fence and four reservoirs would continue on 5 miles of road and 19 miles of ways. The ways are used 5 to 10 times per year and the road is used 15 to 20 times per year to check livestock, spread salt and to maintain facilities. The road has also been used to haul water to livestock.

**Recreation Management Actions**

Motorized vehicle use would continue to be restricted to the existing 5 mile dead-end road and 19 miles of ways through vehicle designation. Current recreation use is estimated to be less than 100 visitor days per year.

**Summary**

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

**3. Affected Environment**

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

**Wilderness Values**

**Naturalness**

The WSA appears to be generally natural. Much of the eastern edge and the center of the WSA are devoid of signs of human activity. Fault-line scarp features are common in the WSA, where they appear as rimrock-lined mesas projecting above rolling hills.

Fourteen interior unnatural features influence approximately 13 percent of the WSA. These features consist of nine ways totaling 19 miles, four livestock reservoirs and 5 miles of barbed wire fence.

Unnatural features outside the WSA that affect the naturalness of the area consists of boundary roads, the dead-end road, livestock grazing developments and the buildings and associated developments at the Bowden Ranch, located just outside the northeastern corner of the WSA.

**Opportunities for Solitude or Primitive and Unconfined Types of Recreation**

The uniform shape and large size of the study area substantially enhance a visitor's ability to experience solitude. Topographic screening is good except on the flats along the northwestern edge of the WSA where little screening is provided by the area's low vegetation. Visitors can easily find a secluded spot in the rolling terrain. There are no special features to attract and concentrate visitors. The sights and sounds emanating from traffic on U.S. Highway 95...
detract from the opportunities for solitude along much of the WSA's western edge. Activities occurring sporadically at the Bowden Ranch detract from solitude opportunities in the extreme northeastern corner of the WSA.

The WSA provides opportunities for hunting, sightseeing, horseback riding, hiking, backpacking, camping, birdwatching and photography. None of these opportunities are outstanding.

Special Features

Extensive areas of black sagebrush in the northern portion of the study area, and large patches of sand dropseed along south-facing hillsides near the Whitehorse Road Junction with U.S. Highway 95, are dependent upon unusual combinations of soils and exposure found in few locations in southeastern Oregon (see Map 5). These vegetative types are of interest to soil scientists, botanists and ecologists.

The WSA lies within the range of the kit fox, which is on ODFW's list of threatened species. Rimrock areas provide nesting habitat for raptors, including hawks and golden eagles. The WSA also provides critical winter habitat for approximately 400 pronghorn antelope (see Map 5).

Three cultural resource surveys have detected one extensive prehistoric site. This locality is on the edge of the WSA and is not likely to be representative of the entire area.

Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetations are sagebrush-steppe and saltbush/greasewood. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass, low sagebrush/bluebunch wheatgrass, and shadscale/Indian ricegrass communities.

There is one standard metropolitan statistical area with population over 100,000 located within 5 hours' driving time of the study area: Boise, Idaho.

Energy and Mineral Development

Energy and mineral resources of the Bowden Hills WSA were evaluated from available geologic data supplemented by geochemical results from a limited number of stream sediment samples taken by a BLM geologist. Technical details of the evaluation are incorporated in a BLM report titled "Assessment of Geology, Energy, and Mineral (GEM) Resources of Bowden Hills Geologic Resource Area (GRA)." BLM geologists used additional published information to update the geothermal resource information during August 1987.

The energy and mineral resources within the WSA have been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in this supplement to the Statewide EIS volume.

Table 3 shows the energy and mineral classification for the WSA. Map 4 shows where energy and mineral resources have moderate potential for occurrence.

Surface geologic material found in the WSA consists largely of Late Tertiary basalt and andesite flows with lesser amounts of Tertiary flow breccias, ash-flow and welded ash-flow tuffs, interbeds of tuffaceous sedimentary rocks, and minor rhyolite flows. Many of the silicic flows have been altered to clay. Other exposed rocks consist of Quaternary unconsolidated gravel, cobble and boulder deposits intermixed and locally interlayered with clay, silt and sand. No pre-Tertiary rocks are known to be exposed in the WSA and it is not known what underlies the Cenozoic cover. However, as this area lies within the margins of late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic marine sedimentary rocks may occur at depth.

Energy Resources

Based on direct evidence, i.e., the presence of two shallow thermal wells located just outside of the southwestern boundary of the WSA, approximately 6,220 acres in the southwestern portion of the WSA are considered to have a moderate potential for the occurrence of geothermal energy suitable for direct heat use (e.g., space heaters).
Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of marine sedimentary rocks at depth. However, there has been no deep drilling in the area that could confirm this assumption. An 8,000-foot deep exploratory gas well was drilled about 20 miles southwest of the WSA, but the well never penetrated the Tertiary volcanic cover and no oil or gas was found.

As of October 16, 1987, there were no oil and gas or geothermal leases in the WSA.

**Mineral Resources**

Based on indirect evidence, approximately 1,770 acres in the northwestern portion of the WSA is considered to have a moderate potential for the occurrence of gold due to the presence of anomalous gold values discovered as a result of a geochemical stream sediment survey conducted by the BLM.

As of October 16, 1987 there were no mining claims located in the WSA.

**Utility Corridor**

The Bonneville Power Administration (BPA) has under long-term consideration construction of a 500-kV power transmission line through a potential north-south corridor which would cross 6 miles of the western edge of the WSA.

**Vegetation**

Most of the WSA is composed of three plant communities, each of which comprise a little less than a third of the area within the WSA: Wyoming big sagebrush/bluebunch wheatgrass, black sagebrush/bluebunch wheatgrass and shadscale/Indian ricegrass. The remainder of the area is divided between the black sagebrush/bottlebrush squireltail community, the Wyoming big sagebrush/bottlebrush squireltail community and low sagebrush/Sandberg’s bluegrass community. A pocket of sand dropseed occurs in the southwestern corner of the WSA. Weak-stemmed milkvetch (Astragalus solitarius) is a Federal candidate for listing as a threatened species and occurs outside the WSA boundaries to the north and south. It has not been found within the WSA boundaries.

In general, the WSA is transitional between a typical sagebrush-steppe vegetation zone of the Owyhee Uplands (dominated by big sagebrush and bluebunch wheatgrass), and a high desert vegetation zone typical of the Basin and Range province (dominated by shadscale and Indian ricegrass).

The majority of the vegetation is in a mid- to late-serial stage, with minor pockets at the potential natural community. Herbaceous perennials occur infrequently and where found include phlox, daisy fleabanes, wild onions, locoweed, and arrowleaf balsamroot. No threatened or endangered plant species have been found in the WSA, although Astragalus solitarius may be present.

**Wildlife**

Pronghorn antelope occupy the area all year long. A relatively small population of approximately 50 summers there and winter herds number from 200 to 400 head. A small population of mule deer numbering about 50 summers in the area and winter herds can reach 200 head. Antelope winter in areas dominated by low structured vegetation such as black sagebrush. Mule deer winter within the more rugged breaks of the Bowden Hills. Total number in the overwintering herd depends upon the severity of the winter. It appears that winters of deep snow accumulation cause greater use of this range. The kit fox, an ODFW threatened species, may be a rare occupant of the area where suitable habitat is present. Golden eagles and several species of hawks nest on the rims of the Bowden Hills.

**Watershed**

There are no perennial streams or springs located within the WSA.

**Livestock Grazing**

Portions of two grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 5 miles of fence and four reservoirs.

Livestock operators use motor vehicles on ways approximately 5 to 10 times per year and on roads approximately 15 to 20 times per year for fence and reservoir inspection and maintenance, to check on livestock and spread salt. The road is also used
occasionally to haul water to livestock. Due to topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

Occasional hunting for deer, antelope and chukar occurs in the study area. However, game populations are small compared with nearby areas and hunting pressure is light. Vehicle use is also light due to lack of attractive features and activities. Total recreation use is less than 100 visitor days per year.

Local Personal Income

Livestock use at the current level of 1,584 AUMs and recreation use totaling less than 100 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $19,000 for livestock grazing and $1,000 related to recreation use of the WSA, for an overall total of $20,000. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended Suitable for Wilderness: 59,900 acres
Recommended Nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All of the WSA would be designated wilderness, and wilderness values within the entire 59,900 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. The special features of the WSA would also be preserved.

Naturalness

The naturalness of the area's rolling hills, mesas, rims and valleys (87 percent of the WSA is pristine and uninfluenced by unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of 19 miles of ways, which influence 2,700 acres (4.5 percent of the WSA), would allow the ways to revegetate. Within three to five growing seasons the two parallel vehicle tracks would revegetate making the ways unnoticeable. Eight miles of ways which access three reservoirs would receive periodic use every 3 to 5 years in order to provide heavy equipment maintenance. This infrequent amount of use would not prevent these ways from revegetating. A fourth reservoir, which lies within 0.5 mile of the southern boundary road, has no developed access and would continue to be maintained via cross-country travel with little disturbance to naturalness.

Solitude

Opportunities for solitude provided by the area's large size would be further improved through the elimination of motorized vehicle use on 19 miles of ways. Vehicles would be limited to the boundary roads and the 5 mile dead-end road. This reduction in vehicular access would provide a large core area for people to hike into and experience solitude with no disturbance from vehicle use.

Every 5 to 10 years, there would be a temporary disruption of opportunities for solitude during maintenance activities on four reservoirs.

Primitive and Unconfined Recreation

Closing 19 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation such as hiking, backpacking, camping and horseback riding. The quality of hunting, birdwatching, photography and sightseeing would improve with the removal of vehicles and the rehabilitation of ways.

Special Features

Eliminating motor vehicle use on 19 miles of ways would reduce the minor seasonal disturbance of kit fox and pronghorn antelope.

Conclusion: Wilderness designation of the entire 59,900 acres within the Bowden Hills WSA would
result in protection and enhancement of existing wilderness values.

**Impacts on Mineral and Energy Development**

Wilderness designation would close 56,140 acres of public lands within the WSA to mineral entry. A total of 3,760 acres of split-estate land would be open to mineral exploration and development.

**Energy Development**

Exploration for energy resources, including geothermal resources on 6,220 acres in the southwestern corner of the WSA, and oil and gas would be precluded on 56,140 acres. As a consequence of wilderness designation, the drilling of one geothermal gradient well would be foregone. No development has been projected, as there are no structures or developments in the WSA which could use geothermal resources as a direct heat source and the discovery of thermal waters hot enough for the generation of electricity is not expected. The drilling of a geothermal gradient well on the 480 acre parcel of split-estate land in the southwestern portion of the WSA is projected, but no development is anticipated.

Due to the lack of sufficient geologic evidence to justify an extensive exploration/development plan, only casual exploration without development is postulated for oil and gas on the 3,760 acres of split-estate land.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Exploration for mineral resources, including gold on 1,770 acres in the northwestern portion of the WSA, would be precluded on 56,140 acres. No development activities have been projected. As no mineral resources with a moderate or high potential for occurrence have been identified on the 3,760 acres of split-estate land, no exploration activities have been projected for those lands.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Utility Corridor Routing**

Under the all wilderness alternative, development of the proposed utility corridor within the WSA would not be permitted. Rerouting the corridor west of the WSA would add approximately 2 miles to its length.

**Conclusion:** The proposed utility corridor would be rerouted west of the WSA, increasing the length of the corridor by 2 miles.

**Impacts on Vegetation**

Under the all wilderness alternative little or no change would take place to vegetation over most of the area. Vegetative composition, as described in the vegetation section of the Affected Environment, would not be changed. Utilization of key forage species would remain at approximately 50 percent with a corresponding maintenance of residual ground cover.

Nineteen miles of ways would revegetate in 3 to 5 years.

**Conclusion:** Little or no change would occur to vegetation on most of the area. Nineteen miles of ways would revegetate in 3 to 5 years.

**Impacts on Wildlife**

Closure of 19 miles of ways would increase the degree of freedom from human interaction for all species of wildlife present, including mule deer, antelope, several raptor species and kit fox. Adequate forage and cover for wildlife would be ensured by the preparation of livestock management plan goals.

**Conclusion:** Wildlife habitat and populations would be maintained on 59,900 acres designated wilderness.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 1,584 AUMs within the portions of the two allotments in the WSA. Wilderness designation of 59,900 acres would preclude the allocation of an additional 1,440 AUMs within the WSA of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values (e.g. reduction in residual ground cover and increased soil erosion due to trampling by livestock). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 19 miles of ways would be precluded under wilderness designation. This would result in inconvenience and additional expense to livestock operators. Heavy equipment would be used
once every 5 to 10 years for maintenance of four reservoirs. This periodic infrequent use would involve 7 miles of ways and 1 mile of cross-country travel.

Conclusion: Livestock use would continue at approximately 1,584 AUMs. A potential allocation increase of 1,440 AUMs of currently available forage within the WSA would be foregone. Vehicle use of 19 miles of ways would be precluded, causing inconvenience and an increase in costs to livestock operators.

Impacts on Recreation Use

Recreation use levels would not be affected by wilderness designation and would remain at less than 100 visitor days per year. Recreation of a primitive nature would increase slightly and motorized recreation would be eliminated by closure of 19 miles of ways to motorized use.

Conclusion: There would be little or no change in recreation use levels which would remain at less than 100 visitor days per year. There would be a shift toward primitive types of recreation.

Impacts on Local Personal Income

Livestock grazing would remain at 1,584 AUMs and overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $20,000.

Partial Wilderness

Recommended Suitable for Wilderness: 45,260 acres
Recommended Nonsuitable for Wilderness: 14,640 acres

Impacts on Wilderness Values

The partial wilderness alternative would add 45,260 acres to the NWPS. The mineral estate on 3,160 acres of split-estate land (6 parcels) would be acquired. The 5-mile dead-end road and 11 miles of ways would be closed. Wilderness values of naturalness, solitude, and primitive and unconfined recreation, and special features would be preserved.

Acquisition of the mineral estate on the split-estate land would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation within the suitable portion.

The 14,640 acres recommended as nonsuitable for wilderness would not be added to the NWPS, the mineral estate on one 600-acre split-estate parcel would not be acquired and 8 miles of ways would remain open to motorized vehicles. Casual exploration for mineral and geothermal resources would occur, resulting in the drilling of one geothermal gradient well near the southern boundary road in the southwestern corner of the WSA. The western portion of the WSA would be open for the development of a 500-kV power transmission line within the proposed utility corridor.

As a consequence of the above actions, wilderness values of naturalness, solitude, primitive and unconfined recreation, and special features would not be protected and preserved in the western quarter of the WSA.

Naturalness

The affects on naturalness in the portion of the WSA recommended suitable for wilderness would be similar to the all wilderness alternative except that the partial wilderness alternative also includes the acquisition of 3,160 acres of mineral estate (if the owners are willing) and the closure of a 5-mile dead-end road.

The acquisition of six parcels (3,160 acres) of mineral estate scattered over the portion of the WSA recommended suitable for wilderness, would preclude any adverse impacts from energy or mineral exploration and development, thus preserving the naturalness of the area. Closing the 5-mile dead-end road and 11 miles of ways would eliminate their unnatural influence on approximately 2,562 acres.

On the portion of the WSA recommended nonsuitable for wilderness, 8 miles of ways would remain open and would continue to adversely impact naturalness on 1,140 acres. Casual mineral and energy exploration would cause only short-term, localized surface disturbance. Natural and induced revegetation, would reclaim the areas affected in 5 to 10 years. Exploration for geothermal resources in the extreme southwestern portion of the WSA would culminate in the drilling of a 4,000 foot geothermal gradient well. This site lies adjacent to the southern boundary road, so no new roads would be constructed. The total surface disturbance due to drilling would be about 0.25 acre, affecting naturalness on less than 300 acres.
Construction of the 500-kV power transmission line and the associated access road in the nonsuitable portion, would cause a surface disturbance of approximately 15 acres and visually disturb 2,700 acres.

**Solitude**

Opportunities for solitude would be enhanced by the closure of 11 miles of ways and the 5 mile dead-end road, and the acquisition of six parcels of split-estate lands totaling 3,160 acres. Solitude would also be enhanced by preventing disturbance from human activities associated with energy and mineral exploration.

On the portion of the WSA recommended nonsuitable for wilderness, opportunities for solitude would continue to be adversely affected by vehicle travel on 8 miles of ways. Solitude would be diminished by continued casual exploration for energy and mineral resources and during drilling and reclamation operations at the proposed geothermal well site located adjacent to the southern boundary road in the extreme southwestern corner of the WSA. Solitude opportunities would be eliminated throughout the nonsuitable portion during construction of the proposed 500-kV power transmission line and its access road. Opportunities for solitude would also be temporarily disrupted every 5 to 10 years during maintenance of four reservoirs.

**Primitive and Unconfined Recreation**

On the portion of the WSA recommended suitable for wilderness, opportunities for primitive and unconfined recreation would increase with the closure of 11 miles of ways and the 5 mile dead-end road by providing a more natural setting for hiking, backpacking, camping and horseback riding. The quality of hunting, birdwatching, photography and sightseeing would improve. The acquisition of six parcels of split-estate lands totaling 3,160 acres would prevent mineral exploration, thus preserving a natural setting for primitive recreational pursuits.

On the portion of the WSA recommended nonsuitable for wilderness, primitive and unconfined recreation opportunities would continue to be adversely affected by vehicle travel on 8 miles of ways and by casual exploration for energy and mineral resources. In the vicinity of proposed geothermal well drilling and powerline construction, opportunities for primitive and unconfined recreation would be diminished for the duration of these operations. Tower pad maintenance would periodically, adversely affect these opportunities in the vicinity of the powerline. Overall, the natural setting available for recreation would be permanently lost.

**Special Features**

Black sagebrush communities, kit fox populations and critical pronghorn antelope winter ranges on the 45,260 acres recommended suitable for wilderness would be protected under the partial wilderness alternative. Protection would be enhanced by acquisition of the mineral estate on six parcels of split-estate lands totaling 3,160 acres.

Black sagebrush communities, kit fox populations and critical pronghorn antelope winter range as well as sand dropseed communities located within the portion of the WSA recommended nonsuitable for wilderness would be subject to continued disturbance due to vehicle use on 8 miles of ways, casual exploration for energy and mineral resources, geothermal well drilling and the construction of a 500-kV power transmission line.

**Conclusion**

Wilderness designation of 45,260 acres would protect and enhance existing wilderness values in the area recommended suitable. Projected activities would impair wilderness values over approximately 3,000 acres (5 percent of the WSA) in the nonsuitable portion, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 45,260 acres within the WSA to mineral entry (assuming acquisition of 3,160 acres of mineral estate). A total of 14,040 acres of public land recommended nonsuitable for wilderness would be open to mineral entry, and 600 acres of split-estate land would be open to mineral exploration and development.

**Energy Development**

Exploration for energy resources, including geothermal resources, and oil and gas would be precluded on 45,260 acres. As a result of wilderness designation, the drilling of a projected geothermal gradient well would be precluded.

As there are no structures or developments in the WSA which could use geothermal resources as a direct heat source and the discovery of thermal waters hot enough for the generation of electricity is not expected, no development has been projected. The drilling of a geothermal gradient well is projected for the southwestern corner of the nonsuitable portion of the WSA, but no development is expected.
Due to the lack of sufficient geologic evidence to justify an extensive exploration/development plan, only casual exploration without development is postulated for oil and gas in the nonsuitable portion of the WSA.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Exploration for mineral resources, including gold on 1,650 acres designated suitable in the northern portion of the WSA, would be precluded on 45,260 acres. Due to a lack of sufficient geologic evidence to justify an extensive exploration/development plan, only casual exploration without development is postulated for gold in the northern corner of the nonsuitable portion of the WSA.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Utility Corridor Routing**

Under the partial wilderness alternative, the proposed utility corridor could be developed as planned.

**Conclusion:** There would be no impact to construction of the 500-kV powerline.

**Impacts on Vegetation**

Impacts on vegetation under the partial wilderness alternative would be similar to the all wilderness alternative in the portion recommended suitable. Eleven miles of ways and 5 miles of roads would revegetate in 5 to 10 years. Acquisition of the split-estate land would prevent removal of vegetation on 0.25 acres, as well as disturbance from exploration since geothermal exploration and development would be precluded.

In the area recommended nonsuitable, powerline construction, including tower pads and access road, would impact vegetation on 15 acres. Utilization of key forage species would remain at approximately 50 percent with a corresponding maintenance of residual ground cover. Eleven miles of ways would revegetate in 3 to 5 years and the five-mile dead-end road would revegetate in 5 to 10 years.

**Conclusion:** Little or no change would occur to vegetation on most of the area. Eleven miles of ways would revegetate in 3 to 5 years and 5 miles of road would revegetate in 5 to 10 years. Powerline construction would remove vegetation on 15 acres.

**Impacts on Wildlife**

Wildlife habitat would be maintained in the portion recommended suitable by precluding exploration for energy and mineral resources through acquisition of the mineral estate. Closure of 11 miles of ways and 5 miles of roads would increase the degree of freedom from human disturbances for all species of wildlife present including mule deer, antelope, several raptor species and kit fox.

In the area recommended nonsuitable, surface disturbance on 0.25 acre and human intrusions related to energy and mineral exploration would cause insignificant short-term impacts to wildlife and their habitats. Utility corridor development would result in 15 acres of surface disturbance and 6 miles of new access road on the 14,640 acres recommended nonsuitable. Freedom from human disturbance in the previously inaccessible area would be lost for all species of wildlife present as a result of powerline and access road construction and maintenance. Impacts of human intrusions would be most adverse on wintering big game populations already under physiological stress from cold temperatures and limited forage availability due to snow cover. Forage and cover needs would be provided in grazing allotment management plan goals.

**Conclusion:** Wildlife habitat and populations would be maintained on 45,260 acres designated wilderness. On the 14,640 acres recommended nonsuitable, mineral and geothermal exploration, and utility corridor development would cause minor, short-term disturbances to wildlife.

**Impacts on Livestock Grazing**

Livestock use would remain at the current use level of approximately 1,584 AUMs within the two allotments in the WSA. Wilderness designation of 45,260 acres would preclude the allocation of an additional 1,440 AUMs of currently available but unallocated forage in affected pastures within the WSA, because of the potential adverse impacts upon wilderness values (e.g. reduction in residual ground cover and increased soil erosion due to trampling by livestock). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 11 miles of ways and 5 miles of road in the area recommended suitable, would be precluded. This would result in inconvenience and some additional expense to livestock operators. The road has been used in the past to
haul water to livestock when sufficient live water is unavailable. Closure of the road would preclude this use and may cause livestock distribution problems at times when live water is unavailable. Heavy equipment would be used once every 5 to 10 years for the maintenance of four reservoirs. This periodic, infrequent use would involve 3.5 miles of cross-country travel, within the area recommended suitable.

Conclusion: A total of 1,440 AUMs of currently available forage within the WSA would be foregone. Vehicle use of 11 miles of ways and 5 miles of road within the area recommended suitable would be precluded, causing inconvenience and a slight increase in cost to livestock operators.

Impacts on Recreation Use

Recreation use levels would not be affected by wilderness designation, although closure of 11 miles ways and the road in the area recommended suitable would change the type of use to primitive, non-motorized recreation. Primitive recreation would increase slightly and motorized recreation would be eliminated by closure of the ways to motorized use in the area recommended suitable.

In the area recommended nonsuitable, recreation use would not be effected by wilderness designation of the adjacent area. The current recreation use level of less than 100 visitor days per year would persist.

Conclusion: There would be little or no change in the recreation use level of less than 100 visitor days per year. There would be a shift toward primitive types of recreation.

Impacts on Local Personal Income

Livestock grazing would remain at 1,584 AUMs and overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $20,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 59,900 acres

Impacts on Wilderness Values

Under this alternative the entire 59,900 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and special features would not be protected from the effects of projected management actions. Projected actions include casual energy and mineral exploration, drilling two 4,000-foot geothermal gradient wells, construction of a 500-kV power transmission line along the western edge of the WSA and a wildlife guzzler near the center of the WSA, allocation of 1,440 AUMs of existing livestock forage within the WSA and continued vehicle use of 19 miles of ways and the 5 mile dead-end road.

Naturalness

Continued vehicle use on the 19 miles of ways and the 5 mile dead-end road would maintain the impact of the vehicle tracks upon naturalness on approximately 2,700 acres (4.5 percent of the WSA) for the ways and approximately 1,000 acres (1.7 percent of the WSA) for the roads. Two geothermal gradient wells would be drilled causing a total surface disturbance of approximately 0.5 acre and a visual disturbance of approximately 700 acres. Construction of a wildlife guzzler would result in a surface disturbance of approximately 0.25 acre and affect naturalness on approximately 35 acres. Construction of a powerline and 6 miles of access road would directly disturb approximately 15 acres and visually disturb approximately 2,700 acres. The allocation of 1,440 AUMs of existing livestock forage would increase trampling around water sources and result in a more grazed appearance with less residual ground cover.

Solitude

Solitude would continue to be adversely effected by vehicle travel on 19 miles of ways and the 5 mile dead-end road. Activities associated with energy and mineral exploration would cause short-term local impairment of solitude in the southwest and northwest portions of the WSA, respectively. Geothermal well drilling and the construction of a wildlife guzzler and a 500-kV power transmission line would cause short-term local disturbances to solitude in the vicinity of
these projects. Opportunities for solitude would also be temporarily lost every 5 to 10 years due to cross-country maintenance activities in the vicinity of the four reservoirs.

**Primitive and Unconfined Recreation**

Vehicle travel on 19 miles of ways and the 5 mile dead-end road would continue to impair opportunities for primitive and unconfined recreation. Casual exploration for energy and mineral resources, including the drilling of two geothermal gradient wells, and the construction of a wildlife guzzler and a 500-kV power transmission line would also adversely affect opportunities for primitive and unconfined recreation in the vicinity of these projects. Additional livestock, or longer periods of grazing, resulting from an increase in forage allocation would detract from opportunities for primitive and unconfined recreation due to an increase in vegetative removal, trampling, fecal deposits and fouling of water, especially in areas where livestock concentrate (e.g. around water, in shade and on level ground).

**Special Features**

Continued vehicle use of the existing road and ways would maintain the impacts upon special features which include black sagebrush and sand dropseed communities, kit fox populations and critical pronghorn antelope winter range. Casual exploration for energy and mineral resources, including the drilling of two geothermal gradient wells, construction of a wildlife guzzler and cross-country maintenance of four reservoirs every 5 to 10 years would cause minor, short-term disturbance to special features. Construction of the 500-kV powerline, including tower pads and access road, would permanently disturb less than 10 acres of the sand dropseed and black sagebrush communities.

**Conclusion:** In the absence of wilderness designation, projected activities would impair wilderness values over approximately 3,435 acres of the WSA, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

All of the 56,140 acres of public land in the WSA would be open to mineral entry. A total of 3,760 acres of split-estate land would be open to mineral exploration and development.

**Energy Development**

Exploration for geothermal resources, on 6,220 acres in the southwestern portion of the WSA, is projected to include the drilling of 2 geothermal gradient wells. As there are no structures or developments in the WSA which could use geothermal resources as a direct heat source and the discovery of thermal waters hot enough for the generation of electricity is not expected, no development has been projected.

Due to the lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration, without development is projected for oil and gas.

**Conclusion:** There would be no impact to energy development.

**Mineral Development**

Due to a lack of sufficient geologic evidence to justify an extensive exploration/development program, only casual exploration, without development is postulated for gold.

**Conclusion:** There would be no impact to mineral development.

**Impacts on Utility Corridor Routing**

The proposed 500-kV power transmission line would be constructed in the utility corridor, as planned.

**Conclusion:** There would be no impact to construction of the 500-kV powerline.

**Impacts on Vegetation**

Under this alternative, higher utilization levels and less residual ground cover would result from the additional allocation of 1,440 AUMs within the WSA. However no impact to vegetative composition is anticipated because grazing in this area would occur during the winter when the impact of grazing on survival of the native bunchgrasses is minimal.

Development of the utility corridor would remove vegetation on 15 acres. Temporary disturbance to vegetation on less than 1 acre would result from the drilling of two geothermal gradient wells and the construction of one wildlife guzzler.

**Conclusion:** There would be an increase in utilization of grasses with a corresponding decrease in residual ground cover resulting in a more grazed...
Impacts on Wildlife

The surface disturbance on 0.5 acre and human intrusions related to mineral and geothermal exploration would have insignificant short-term impacts to wildlife and their habitats. Roads and ways would remain open for unrestricted public access. Due to the remote nature of the area, the impacts to wildlife and wildlife habitat from most public entry by recreationists would be minor to all species of wildlife present including mule deer, antelope, several raptor species and the kit fox. Solitude and freedom from disturbance in previously inaccessible areas would be disrupted on 15 acres for all species present as a result of corridor construction and maintenance. Impacts of human intrusions would be most adverse on wintering big game populations already under physiological stress from cold temperatures and limited forage availability due to snow cover.

Construction of one guzzler would benefit game and nongame species alike by expanding the amount of usable habitat previously unoccupied because of lack of water. Guzzlers also provide what may be the only remaining sources of surface water during drought periods. An additional forage allocation of 1,440 AUMs would increase competition for forage by big game and livestock since both groups of animals would be on the range during the winter period. Some wildlife losses related to a lack of forage would be expected as a result of this action.

Conclusion: Wildlife populations of game and nongame species would sustain minor, periodic harassment due to human activity associated with development of the utility corridor and projected mining exploration. Additional allocation of livestock forage would reduce nesting and escape cover. Installation of one guzzler would expand wildlife populations into a previously unutilized area.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated resulting in an increase in livestock forage allocation of 1,870 AUMs within affected pastures. Approximately 1,440 of these AUMs are within the WSA and the remainder are in portions of pastures extending outside the WSA.

Vehicle use for livestock management, inspection and maintenance of 5 miles of fence and four reservoirs, and water hauling in times of drought would continue on 19 miles of ways and a 5-mile road.

Conclusion: An additional allocation of 1,870 AUMs would be realized.

Impacts on Recreation Use

Recreation use levels and types of recreation would remain unchanged at less than 100 visitor days per year under the no wilderness/no action alternative.

Conclusion: The area's visitor use level would remain unchanged at less than 100 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would increase by 1,870 AUMs. Overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $22,440 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $22,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), construction of the 500-kV powerline and one wildlife guzzler, and the drilling of two geothermal gradient wells would lead to unavoidable adverse impacts to wilderness values as a result of 16 acres of surface disturbance which would visually influence an additional 3,435 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the proposed action existing short-term uses would continue and future development options, including projected wildlife and utility corridor developments would remain open. Long-term productivity of wilderness values would be lost on 3,450 acres due to the construction of a 500-kV power transmission line and one wildlife guzzler. Further declines in wilderness values due to other uses would be possible over the long term.
Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, development of the utility corridor and the construction of one wildlife guzzler would result in an irreversible commitment of the wilderness resource on 16 acres.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The areas designated wilderness under both the all wilderness and the partial wilderness alternatives would be manageable as wilderness. Under the all wilderness alternative, exploration activities on the split-estate parcels and continuing public access to the interior of the WSA via the 5-mile road could cause manageability problems.

Rationale for Selection of the Proposed Action

The no wilderness/no action is proposed because the benefits of retaining options for development in the area, including exploration for potential energy and mineral resources, construction of energy transmission facilities in a potential utility corridor, construction of wildlife management facilities and allocation of an additional 1,440 AUMs of forage, would outweigh the benefits of preserving the area’s wilderness values.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA, concerning adequacy of the analysis in this appendix, and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Black sagebrush is unusually common in the WSA and deserves to be mentioned as a special feature. Also, the presence of sand dropseed and possibly Astragalus solitarius are noteworthy features. All these species deserve protection. Response: Black sagebrush and sand dropseed are discussed as special features of the WSA. The former two are also known to occur with some degree of regularity outside of the WSA boundaries, however A. solitarius has not been found in the WSA. Refer to Section 3, Affected Environment regarding Special Features and Vegetation.

Comment: Low altitude military flights make the area incompatible with wilderness values. Response: Low level aircraft flights affect most of the WSAs in Oregon. This subject is beyond the scope of this EIS. Refer to the Statewide EIS (Volume I), Chapter 5 under Issues Not Analyzed.

Comment: Wilderness designation will have a negative impact on livestock operators, specifically Bowden Ranch. Response: Wilderness designation is projected to have a minor impact on livestock operators because there would not be any reduction in AUM allocation. Closure of the 5-mile road under the partial alternative could cause livestock distribution problems during drought years because the road would not be available to haul water. If the proposed alternative (no wilderness) is implemented, local personal income is projected to increase by $22,000. Part of this increase would benefit livestock operators. Consequences for livestock operators are addressed in Section 4, Environmental Consequences regarding Impacts on Livestock Grazing and Local Personal Income.
Table 1. Summary of Proposed Management Under Each Alternative, Bowden Hill WSA (OR-3-118)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>59,900</td>
<td>45,260</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>59,900</td>
<td>45,260</td>
<td>0</td>
</tr>
<tr>
<td>Mile of Roads Closed</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>19</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired²</td>
<td>0</td>
<td>3,160</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>56,140</td>
<td>42,100</td>
<td>0</td>
</tr>
<tr>
<td>Geothermal Wells Drilled</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Wildlife Guzzlers Developed</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated (AUMs)³</td>
<td>0</td>
<td>0</td>
<td>1,870</td>
</tr>
<tr>
<td>Miles Added to Potential Utility Corridor</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Utility Corridor Development in the WSA</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

¹Except for a 5-mile road and 19 miles of ways, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
²Upon acquisition of the mineral estate these lands would be withdrawn from mineral location and leasing.
³Approximately 1,440 of the AUMs allocated under the No Wilderness alternative are within the WSA boundary.
Table 2. Summary of Environmental Consequences of Alternatives, Bowden Hills WSA (OR-3-118)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 59,900 acres would result in protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 45,260 acres would protect and enhance existing wilderness values in the area recommended suitable. In the area recommended nonsuitable, projected activities would impair wilderness values over approximately 3,000 acres, with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would impair wilderness values over approximately 3,435 acres, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy and mineral development is expected.</td>
<td>No impact to energy and mineral development is expected.</td>
<td>There would be no impact to energy and mineral development.</td>
</tr>
<tr>
<td>Utility Corridor Routing</td>
<td>The proposed utility corridor would be rerouted west of the WSA, increasing its length by 2 miles.</td>
<td>There would be no impact to construction of the 500-kV powerline.</td>
<td>There would be no impact to construction of the 500-kV powerline.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Little or no change would occur to vegetation on most of the area. Nineteen miles of ways would revegetate in 3 to 5 years.</td>
<td>Little or no change would occur to vegetation on most of the area. Eleven miles of ways would revegetate in 3 to 5 years and a 5-mile road would revegetate in 5 to 10 years. Powerline construction would remove vegetation on 15 acres.</td>
<td>There would be an increase in utilization of grasses with a corresponding decrease in residual ground cover resulting in a more grazed appearance. Construction of the powerline and one guzzler would remove vegetation on 16 acres.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 59,900 acres designated wilderness.</td>
<td>Within the area recommended suitable, wildlife habitat and populations would be maintained on 45,260 acres. In the area recommended nonsuitable, short-term disturbances to wildlife would occur.</td>
<td>Wildlife habitat and populations would sustain minor, periodic harassment. Additional allocation of livestock forage would reduce nesting and escape cover. Installation of one guzzler would expand wildlife populations into a previously unutilized area.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>An increase of 1,870 AUMs of currently available forage within the WSA would be foregone. Vehicle use of 19 miles of ways would be precluded, causing inconvenience and an increase in cost to livestock operators.</td>
<td>An increase of 1,870 AUMs of currently available forage would be foregone. Vehicle use of 11 miles of ways and a 5-mile road within the area recommended suitable would be precluded, causing inconvenience and a slight increase in cost to livestock operators.</td>
<td>An additional allocation of 1,870 AUMs would be realized. Vehicle use by operators would continue on 19 miles of ways and a 5-mile road.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>There would be little or no change in the recreation use level of less than 100 visitor days per year. There would be a shift toward primitive types of recreation.</td>
<td>There would be little or no change in the recreation use level of less than 100 visitor days per year. There would be a shift toward primitive types of recreation.</td>
<td>The area's visitor use level of less than 100 visitor days per year would remain unchanged.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income generated from resource outputs in the WSA would remain at approximately $20,000.</td>
<td>Annual local personal income generated from resource outputs in the WSA would remain at approximately $20,000.</td>
<td>Annual local personal income generated from resource outputs in the WSA would increase by approximately $22,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Bowden Hills WSA (OR-3-118)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold</td>
<td>See map 4</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Gold, silver, mercury</td>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>See map 4</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Rest of WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Bowden Hills WSA (OR-3-118)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Active Preference in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowden Hills(^{1}) (No. 0803)</td>
<td>1,927</td>
<td>11/01-03/31</td>
<td>77</td>
<td>1,485</td>
</tr>
<tr>
<td>Fifteenmile Community (No. 1201)</td>
<td>25,118</td>
<td>03/01-04/15</td>
<td>2</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>27,045</td>
<td></td>
<td></td>
<td>1,584</td>
</tr>
</tbody>
</table>

\(^{1}\)In 1985 the Bowden Hills Allotment was split from the Barren Valley Community Allotment.
Table 5. Effects of Alternatives on Local Personal Income, Bowden Hills WSA (OR-3-118) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>+1,870</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>+22,440</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>+22,440</td>
</tr>
</tbody>
</table>
U.S. Department of the Interior
Bureau of Land Management
Vale District
Bowden Hills WSA
OR-3-118

LOCATION MAP
U.S. Department of the Interior
Bureau of Land Management
Vale District
Bowden Hills WSA
OR-3-118

LAND OWNERSHIP

426

MAP 2

LEGEND

- BLM Land Studied Under Section 202 of FLPMA (Other BLM Land in WSA Studied Under Section 603 of FLPMA)
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- Private
- BLM Surface-State or Private Subsurface (Split Estate)
U.S. Department of the Interior
Bureau of Land Management
Vale District

Bowden Hills WSA
OR-3-118

PARTIAL ALTERNATIVE

- Wilderness Study Area Boundary
- Recommended Suitable for Wilderness
- Recommended Non-suitable for Wilderness
- Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness
- Recommended Road Closure
Entire WSA:
Moderate Potential (MB) for Oil and Gas

Moderate Potential (MB) for Gold

Moderate Potential (MC) for Geothermal Resources

U.S. Department of the Interior
Bureau of Land Management
Vale District

Bowden Hills WSA
OR-3-118

MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES
U.S. Department of the Interior
Bureau of Land Management
Vale District

Bowden Hills WSA
OR-3-118

SPECIAL FEATURES

Kit Fox Year-Long Habitat
Crucial Antelope Winter Range
Black Sagebrush
Sand Dropseed
Bowden Hills WSA, OR-3-118. Southwestern portion of WSA looking east across the southern portion of the WSA. Within area recommended suitable under the partial alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Bowden Hills WSA, OR-3-118. Northeastern portion of WSA looking west up a main drainage. Within area recommended suitable under the partial alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Clarks Butte Wilderness Study Area (OR-3-120)

1. Introduction

General Description of Study Area

The Clarks Butte Wilderness Study Area (WSA) is located in Malheur County, Oregon, approximately 18 miles west of Jordan Valley and 6 miles north of U.S. Highway 95 (see Map 1).

The WSA contains 31,490 acres, including 40 acres of split-estate land (see Map 2). It is bordered on the north by a BLM low standard dirt road, on the east and south by private land, and on the west by BLM low standard dirt roads and fenced areas containing extensive land treatments (crested wheatgrass seedings). A 0.5 mile-long, dead-end low standard dirt road enters the WSA, forming part of the boundary, and provides access to Junction Pit Reservoir from the western boundary road.

While there are no private inholdings in the WSA, two 40-acre private parcels are nearly enclosed by the boundary. One parcel is adjacent to the western boundary, the other is on the eastern boundary.

Clarks Butte gently rises approximately 1 mile north of the study area’s center and Lava Butte lies approximately 1 mile south from the same point.

The WSA contains two distinct lava flows. The older flow generally has weathered to a relatively smooth soil mantle and occupies the northern third of the WSA. It includes Clarks Butte, the probable source of the flow, and the surrounding slopes.

The younger flow occupies most of the WSA’s southern two-thirds. It consists of two probable sources (Lava Butte and an unnamed companion butte) and the surrounding gently-sloping circular outflow. The surface features here are much more distinct than the older Clarks Butte flow. Craters, spatter cones, lava tubes, caves, domes and gutters are still recognizable even though some weathering and soil deposition has occurred.

Prior to a 1986 wildfire which decimated cover over the entire WSA, vegetation had been predominantly a Wyoming big sagebrush-bluebunch wheatgrass community. Except for remnant stands, sagebrush has been eliminated by the wildfire in the WSA so that the present community consists predominantly of grasses and forbs. Much of the vegetation in the Lava Butte flow is relatively pristine because livestock grazing is limited by the area’s lack of water and its broken surface.

Interrelationships

The northern portion of the WSA includes a small portion (3,270 acres) of the Jordan Craters Research Natural Area (RNA) and the Jordan Craters Area of Critical Environmental Concern (ACEC) (see Map 3). The RNA was designated in 1975 to protect unique ecological, geological and biological features for scientific and educational endeavors.

The ACEC was designated in 1983 to provide special management to protect those features. Special Management for the ACEC includes:

- managing livestock to protect pristine vegetation and the present condition of the vegetative cell identified through the Oregon Natural Heritage Program;
- limiting off-road vehicle (ORV) use to designated routes;
- erecting barriers and signs to deter ORV use and protect the fragile habitat;
- protecting from surface-disturbing activities; and
- preventing unauthorized mineral extraction.

These restrictions for the ACEC would continue to apply whether or not the area is designated as wilderness.
This study area is adjacent to the Jordan Craters WSA (OR-3-128) directly to the north and is separated from it by a road.

The WSA is located within the Oregon Department of Fish and Wildlife's (ODFW) Owyhee Wildlife Unit which contains approximately 3,026 square miles of land area. The WSA supports summer populations of approximately 100 mule deer and 20 pronghorn antelope. ODFW manages the Owyhee unit to produce 20 bucks per 100 does of antelope and 30 bucks per 100 does of mule deer. Townsend's big-eared bats, a category 2 candidate for listing under the Endangered Species Act, utilize the lava tubes of the WSA during their breeding season. The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for the WSA exceeds ODFW management goals for game and nongame wildlife species.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on the designation of the potential utility corridor;
- impact on mineral exploration;
- impact on livestock grazing use levels; and
- impact on mule deer, sage grouse and nongame species habitat and populations.

Also raised as an issue was the possibility of increased visitor use impacting the area's unique and fragile lava features. This issue was not analyzed because it is unlikely that wilderness designation would significantly affect visitor use levels.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State, and local laws and policies could result in different outcomes than those projected in this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would take place under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981), professional judgment regarding approximate project location and general site conditions, and design features commonly applied to the various types of projects expected. No definite forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- no wilderness/no action (proposed action)

An enhanced wilderness alternative, which would have combined this WSA with the Jordan Craters WSA by closing the boundary road between them, was not analyzed because the road is one of the primary access routes from the populated Jordan Valley area to the more remote Mud Lake area. The road is used by crews who maintain numerous range projects throughout the Mud Lake area, and closing this road would cause a detour for 15 to 30 miles.

A partial alternative, which was analyzed in the Draft EIS, is no longer being analyzed. The reason for the partial alternative was a resource conflict with a proposed brush control project to be accomplished by means of a controlled burn. In 1986, the entire WSA was burned by a wildfire, thus eliminating the need to propose brush control; consequently, there is no longer any reason to consider the partial alternative.

All Wilderness

The all wilderness alternative would recommend all 31,490 acres in the WSA suitable as wilderness (see Map 2). The short dead-end road to Junction Pit Reservoir would remain open. For the purpose of analysis, it is assumed that the mineral estate of the 40-acre parcel of split estate land would not be acquired.
Energy and Mineral Development Actions

Wilderness designation would close 31,450 acres within the WSA to all forms of mineral entry. A total of 40 acres of split-estate land would remain open to mineral exploration and development. Exploration for geothermal resources and oil and gas would be prohibited on 31,450 acres. Due to a lack of geologic evidence, no known petroleum- or geothermal-bearing formations, a subsurface not conducive to the formation of hydrocarbons, a relatively thick volcanic covering on the surface and the absence of any existing mineral leases, only casual exploration for oil and gas and geothermal resources is postulated on the 40 acres of split-estate lands.

Utility Corridor Routing

The proposed utility corridor would be rerouted south of the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with the BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans wildlife habitat management plans and land use plan updates which ensure adequate forage and cover for wildlife.

Livestock Management Actions

Livestock use would continue at the current level of approximately 989 AUMs within the portion of the allotment in the WSA. The season of use would remain as identified in Table 4. Vehicle use for day-to-day livestock management on the 0.25-mile way would be precluded. Management of livestock and maintenance of 2 miles of fence would be conducted primarily on horseback. Mechanized equipment would be used once every 5 to 10 years to maintain the two existing reservoirs.

Recreation Development Actions

Motorized recreation use on the 0.25-mile way would be precluded. Presently, vehicle use is limited by vehicle designation to the 0.5 mile of existing road and 0.25 mile of existing way. Recreational use is estimated to be less than 100 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA as nonsuitable for wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 31,490 acres would be open to mineral entry. Although oil and gas and geothermal resources have a moderate potential for occurrence, the WSA has no known petroleum- or geothermal-bearing formations, a subsurface that is not conducive to the formation of hydrocarbons, a moderately thick volcanic covering on the surface and no current mineral leases. Therefore, due to the lack of sufficient geologic evidence to justify a major exploration/development program, only casual surface exploration of these energy resources is postulated.

Utility Corridor Routing

The proposed utility corridor would be designated as planned and would be available to route a proposed 500-kV power line through the southeast portion of the area. Construction of the power line would necessitate the building of 7 miles of roads within the WSA along the proposed route.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans and land use plan updates which ensure adequate forage and cover for wildlife. Four wildlife guzzlers would be constructed.

Livestock Management Actions

An additional 989 AUMs of livestock forage currently available but unallocated would be allocated to
livestock. The increase in the WSA would be approximately 183 AUMs, with the remainder occurring in portions of the pastures extending outside the WSA.

One new reservoir and 5 miles of pipeline with a storage tank, access road and five watering troughs would be constructed to provide water for livestock.

Approximately 1,200 additional AUMs would be allocated to livestock as a result of the water developments and a wildfire which removed brush on 18,000 acres in 1986.

Vehicle use for livestock management and maintenance would continue on the 0.25-mile way. This use is projected to involve approximately one to five trips per year to check and maintain a 2-mile fence. Horses would be used to check on livestock and maintain the fence. Cross-country use of mechanized equipment would be authorized once every 5 to 10 years to maintain the two reservoirs.

Recreation Management Actions

Motorized vehicle use on the 0.25-mile way would continue. The current vehicle designation, limiting vehicle use to existing roads and ways, would remain in effect. Recreational use would be less than 100 visitor days per year.

Summary

Table 1 summarizes the projected management of the WSA under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The Clarks Butte WSA is in a highly natural condition. The lava flows which occupy most of the surface of the WSA provide an expansive natural vista and are generally free of developments. Five developments, including a fence, two reservoirs, a 0.25-mile way and an irrigation canal are within the WSA. The fence and one reservoir lie between Clarks Butte and the eastern boundary. The other reservoir is in the northwest corner. These developments influence about three percent of the study area. (The area of influence is an estimate of the acreage within the WSA from which those developments can be seen.) The southeastern slopes are influenced slightly by distant developments.

Solitude

The Clarks Butte WSA offers outstanding opportunities for solitude which are enhanced by the area's size and configuration. However, the area's relatively unpronounced topographic relief and low vegetation do not provide many secluded spots. On the buttes, which are an attraction because they provide a commanding view, visitors will readily observe and be observed by others on the buttes or plains below. A short, southerly extension of the area is too narrow to provide isolation from activities outside the WSA.

Sights and sounds from activities outside the WSA include vehicle travel on the northern and eastern boundary roads, ranching activities to the east, maintenance of livestock water projects to the west and military aircraft training flights overhead. These intrusions are generally brief and distant and do not substantially affect the WSA.

Primitive and Unconfined Recreation

Spelunking in the area's lava tubes and a minor amount of hiking and hunting are the only notable recreation opportunities available in the WSA. Other primitive recreation opportunities are limited by lack of distinguishing features.

Special Features

The two different lava flows in the Clarks Butte WSA, in conjunction with a younger flow in the adjacent Jordan Craters WSA, exhibit three stages in the aging and weathering of volcanic features. A series of deep cracks runs for about 1 mile inside the Clarks Butte flow near its interface with the Lava Butte flow. The cracks parallel the interface and indicate a possible failure in the older crust from the weight of the encroaching lava.

A small area of very recent, textured lava is located within the Lava Butte flow. The texture, color and
possibly the chemical composition of the extrusion differ from the more common pahoehoe flows.

The Lava Butte flow contains at least one system of lava tubes which contains some uncollapsed cave segments. Collapsed tubes and other fissure areas provide stable temperatures and humidities which promote the growth of mosses and ferns not normally found in the harsh, dry climate of the region.

Due to the rugged terrain and limited forage and water, the lava flows are basically ungrazed. In a few isolated areas where sufficient soil has developed and matured, pristine near-climax plant communities have formed.

The scientific and educational importance of the WSA is indicated by the results of previous scientific studies and by the fact that it includes part of the Jordan Craters RNA and ACEC (see Map 3).

A small population of sage grouse occupies the unit and Townsend’s big-eared bat utilize the lava tubes of the WSA during breeding season. Both of these species are candidates for Federal listing under the Endangered Species Act.

Only one cultural site has been identified in the WSA. The site is a lithic scatter identified during a documented search for cultural resources conducted prior to construction of a reservoir.

Diversity in the National Wilderness Preservation System (NWPS)

According to the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and its potential natural vegetation is sagebrush steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA represents a big sagebrush-bluebunch wheatgrass community.

There is one standard metropolitan statistical area with a population over 100,000 located within five hours’ driving time of the study area: Boise, Idaho.

Energy and Mineral Development

The energy and mineral resources of the WSA were evaluated from available geologic data by BLM geologists. Technical details of the findings of the evaluation are in a BLM report titled “Assessment of Geology, Energy and Mineral Resources of Jordan Craters-Clarks Butte Geologic Resource Area.”

The WSA is within the Jordan Craters-Clarks Butte geologic resource area which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Surface geologic material found in the Clarks Butte WSA consists largely of Tertiary and Quaternary basal flow and flow breccias, with lesser amounts of Tertiary tuffaceous sedimentary rocks and tuffs. The area is underlain by a thick accumulation of Tertiary volcanic and some sedimentary rocks. Although no pre-Tertiary rocks are known to be exposed in the WSA, the area is within the western margins of late Paleozoic and Triassic sedimentary basins and both Mesozoic and Paleozoic marine sediments may occur at depth. However, no deep drilling has penetrated the Tertiary cover to confirm this. No metallic mineralization is known in the WSA.

Table 3 shows the mineral classification for the WSA.

Energy Resources

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of geothermal resources. Because of the evidence of geologically recent volcanic activity and above-normal heat flow, the WSA is generally considered favorable for thermal waters for low temperature direct heat use.

Again based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas because of the possibility of oil-bearing rocks at depth. However, there has been no deep drilling in the vicinity that has penetrated the Tertiary volcanic cover.

As of October 16, 1987 there were no oil/gas or geothermal leases in the WSA.

Mineral Resources

Based upon indirect evidence, no mineral resources have been identified that have a moderate or high potential for occurrence.
As of October 16, 1987, there were no mining claims in the WSA.

Utility Corridor

The Bonneville Power Administration (BPA) and Pacific Power & Light (PP&L) have under long-term consideration construction of a 500-kV powerline through a potential east-west corridor across southeastern Oregon. The proposed route could cross approximately 7 miles of the southeastern corner of the WSA.

Vegetation

The area is divided into two vegetative communities, both dominated by bluebunch wheatgrass with herbaceous perennials such as daisy fleabanes, phlox, lupines and milkvetches. One community in the northern portion of the WSA, outside the Lava Butte lava flow, is in mid-seral stage. The other plant community lies within the Lava Butte lava flow where, because of a lack of soil development on these newer lavas, vegetation consists of a sparse, pristine community of bluebunch wheatgrass, herbaceous perennials, mosses and lichens. Where soil has developed in isolated pockets in this area, representative communities of the vegetation type found in the northern portion of the WSA are near the potential natural community.

Scattered fissures and collapsed lava tubes within the lava flow provide unique vegetative habitats. They support fern species such as Eaton hollyfern and male woodfern which are uncommon in this area.

Wildlife

The variety of wildlife species and habitats is relatively poor due to the absence of year-round water and recent wildfires which have removed sagebrush cover. The WSA does however lie along a waterfowl flyway for the Cow Lakes and Batch Lake wetlands.

Several game species utilize the WSA. An estimated 100 mule deer and 20 pronghorn antelope use the WSA as summer range. Other game species include a small population of sage grouse, valley quail and chukar partridge. Sage grouse and Townsend’s big-eared bat, which utilizes the lava tubes of the WSA during breeding season, are both category 2 candidates for listing under the Endangered Species Act.

Other nongame species present are common and widespread throughout the intermountain region.

Watershed

There are no perennial streams or springs within the WSA.

Livestock Grazing

A portion of one grazing allotment lies within the WSA. Currently, all public lands in the WSA are leased for grazing by domestic livestock. Table 4 summarizes existing livestock use in the WSA.

Existing livestock developments among the features listed in the naturalness section include two reservoirs and a 2-mile fence. A wildfire in August, 1986 swept through virtually all of the WSA, removing sagebrush from approximately 18,000 acres used by livestock. A portion of this area had been identified in the draft EIS for brush control through burning on 6,450 acres to increase forage by 840 AUMs. This forage will not be available to livestock until further water sources are developed.

Livestock operators use motor vehicles on the one way in the WSA for fence inspection and maintenance. Use is limited to approximately one to five trips per year. Due to the rugged topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

Recreation Use

A minor amount of spelunking (caving associated with lava tubes), hiking and hunting occurs in the WSA. Very little vehicle use occurs within the WSA due to the “limited to existing routes” ORV designation (closed to cross country travel), the existence of very few ways or roads, and the roughness of the terrain.

Present recreation use is estimated to be less than 100 visitor days per year.

Local Personal Income

Livestock use at the current level of 989 AUMs and recreation use totaling less than 100 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels
amounts to approximately $11,868 for livestock grazing and approximately $1,000 related to recreation use of the WSA, for an overall total of $12,868. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 31,490 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All of the WSA would be designated wilderness, and wilderness values within 31,450 acres WSA would be protected by legislative mandate. Wilderness values of naturalness, solitude, and special features such as unique lava features, sage grouse and Townsend's big-eared bat, unique vegetative habitat and educational and scientific values would be protected.

Naturalness

The WSA's high degree of naturalness would be protected and enhanced by wilderness designation. The 0.25-mile way would be allowed to revegetate and vegetation would encroach into the two parallel vehicle tracks making the ways unnoticeable within two to three growing seasons. Maintenance of the two existing reservoirs would require vehicle access every 5 to 10 years, necessitating cross-country travel which would cause little disturbance to naturalness.

Short-term, localized minor surface disturbance (exploration pits and cross-country access) would occur on the split-estate parcel. Reclamation and natural revegetation would leave little evidence of disturbance.

Solitude

Opportunities for solitude within the WSA would be enhanced by restriction of motorized recreation use on the 0.25-mile way. Vehicles would be limited to the boundary roads and the 0.50 mile dead end road to Junction Pit Reservoir. The area provides a large core area for people to hike into and experience solitude with no disturbance from vehicle use.

Primitive and Unconfined Recreation

Closure of the 0.25-mile way to motorized vehicle use would have little impact on opportunities for primitive and unconfined recreation such as hiking, spelunking and hunting.

Special Features

Important educational and scientific research opportunities arising from the undisturbed condition of the lava flows would be protected by wilderness designation. Eliminating motorized vehicle use on the 0.25-mile way would have little or no impact on special features.

Conclusions: Wilderness designation of the entire 31,490 acres within the Clarks Butte WSA would protect and enhance the wilderness qualities and special features of the area.

Impacts on Energy and Mineral Development

Wilderness designation would close 31,450 acres of public land within the WSA to mineral entry. Forty acres of split-estate land would be open to mineral entry and development.

Energy Development

Exploration for oil and gas and geothermal resources would be precluded on 31,450 acres. Exploration could occur on the 40 acres of split-estate lands. Due to the lack of geologic evidence to justify an extensive exploration/development program, only casual exploration without development is expected.

Conclusion: No impact to energy development is expected.

Mineral Development

No mineral resources have been identified that have a moderate or high potential for occurrence. Consequently, no mineral exploration or development is projected.
Conclusion: No impact to mineral development is expected.

Impacts on Utility Corridor Routing

The portion of the proposed utility corridor through the WSA would not be designated. The 7 miles of 500-kv powerline would be rerouted approximately 2 to 3 miles to the south, adding negligible length to the route.

Conclusion: The utility corridor would not be designated in the WSA and the powerline would be rerouted 2 to 3 miles to the south, adding negligible length to the route.

Impacts on Vegetation

Little or no change would take place to vegetative composition or ecological condition.

Conclusion: Vegetative conditions would be maintained throughout the WSA.

Impacts on Wildlife

Wildlife habitat for approximately 100 mule deer, 20 antelope, a small population of sage grouse, Townsend’s big-eared bat and other nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. Surplus forage above the minimum level identified by ODFW as necessary for their deer and antelope population goals would be available, since the 998 AUMs of available but unallocated forage and 1,200 AUMs of additional forage resulting from a 1986 wildfire would not be allocated to livestock. Closure of the 0.25-mile way would eliminate minor seasonal vehicle disturbances to mule deer, antelope and sage grouse.

Construction of four guzzlers would be precluded under this alternative, forfeiting the benefits that these extra watering facilities would provide.

Conclusion: Wildlife habitat and populations would be maintained on 31,490 acres designated wilderness.

Impact on Livestock Grazing

Livestock use would remain at the current use level of approximately 989 AUMs in the WSA. Wilderness designation would preclude the allocation of 998 AUMs of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values (e.g. a decrease in residual ground cover and an increase in trampling and erosion of soil). Of the total increase, approximately 183 of the AUMs involve lands in the WSA. The remaining 815 AUMs are outside the WSA in pastures partially within the wilderness area. Because of possible drift into the WSA, the total AUM increase within these pastures could not be allocated.

Allocation of approximately 1,200 additional AUMs of forage to livestock as a result of a wildfire, which removed brush from 18,000 acres, would also be precluded due to potential adverse impacts on wilderness values and the need for additional water sources to make this forage available to livestock. Construction of the reservoir and 5 miles of pipeline would be precluded.

Vehicle use for livestock management on 0.25 mile of way would be precluded, resulting in minor inconvenience to livestock operators. Mechanized equipment would be used cross-country once every 5 to 10 years for maintenance of the two reservoirs which have no access. To gain access to the reservoirs, 3 miles of cross-country travel is required.

Conclusion: A livestock allocation increase of 998 AUMs of currently available forage (183 AUMs in the WSA) would be foregone. An additional projected increase of 1,200 AUMs would also be foregone. Vehicle use of a 0.25-mile way would be precluded with minor inconvenience to livestock operators.

Impacts of Recreation Use

Closure of the 0.25-mile way would have a minimal impact on recreation use levels in the WSA. Overall recreation use is low (less than 100 visitor use days per year), and the additional 0.25 mile of foot access would not deter most recreationists.

Conclusion: The area’s recreational use level of less than 100 visitor use days per year would not be affected. Wilderness designation would ensure continuation of primitive, non-motorized forms of recreational use.

Impacts on Local Personal Income

Livestock grazing would remain at 989 AUMs. Overall recreation use would remain at less than 100 visitor days per year.
Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $13,000.

**No Wilderness/No Action (Proposed Action)**

Area recommended suitable for wilderness: 0 acres
Area recommended nonsuitable for wilderness: 31,490 acres

**Impacts on Wilderness Values**

Under this alternative, the entire 31,490 WSA would be recommended nonsuitable for wilderness designation, and wilderness values would not receive legislative protection. Wilderness values of naturalness, solitude, and the area's special features, including sage grouse and Townsend's big-eared bat, unique lava formations, unique vegetative habitats and opportunities for educational and scientific research would be subject to the effect of projected management actions on 28,220 acres outside of the designated ACEC/RNA (see Map 3). On the 3,270 acres within Jordan Craters ACEC/RNA, the wilderness values would receive administrative protection from most projected activities. Although the ACEC/RNA is not withdrawn from mineral entry, no energy or mineral development is projected to occur in the area.

Projected actions outside of the ACEC/RNA include a utility corridor with a 500-kV powerline development, an increase of 1,383 AUMs, one reservoir, 5 miles of pipeline with five troughs and a storage tank plus a parallel road along the pipeline, four wildlife guzzlers and continued vehicle use on the 0.25-mile way within the WSA.

**Naturalness**

Continued vehicle use on the 0.25-mile way would maintain its impact on naturalness on approximately 40 acres. This influence would be primarily in the southeast portion of the WSA.

The allocation of an additional 1,383 AUMs within the WSA would increase trampling around water sources and increase utilization of forage, resulting in a more grazed appearance with less residual ground cover.

Construction of the livestock reservoir, 5 miles of pipeline and five troughs and storage tank with an adjacent maintenance road, and four wildlife guzzlers would influence the naturalness on approximately 1,000 acres of the WSA.

The designated utility corridor would cross the southeast portion of the WSA for a total of 7 miles. Development of a 500-kV powerline within the corridor would directly disturb 20 acres and visually influence naturalness on approximately 4,500 acres.

**Solitude**

Continued vehicle use on the 0.25-mile way would cause short-term, local impairment of solitude opportunities adjacent to the activity. Short-term disruptions to solitude would also occur during construction and maintenance activities associated with the proposed utility corridor. Construction and maintenance of the proposed livestock developments and wildlife guzzlers would further degrade opportunities for solitude.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways; however, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 0.50 mile of road and the 0.25-mile way which enter the WSA. Development of the utility corridor and pipeline, and the associated roads needed for their construction and maintenance would further reduce opportunities for primitive and unconfined recreation. Construction of water developments for wildlife and livestock would increase recreational opportunities dependent upon increased wildlife populations such as bird watching and hunting.

**Special Features**

Construction of new roads associated with livestock and wildlife water developments and the 500-kV powerline and associated maintenance road in the proposed utility corridor would disturb 12 miles of the area's unique lava formations and vegetative habitats, and temporarily reduce sage grouse and Townsend's big-eared bat populations in the vicinity of the developments. However, construction of water developments for wildlife and livestock would eventually increase wildlife populations by providing more sources of water.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and
indirectly impair wilderness values over approximately 5,500 acres (18 percent) of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

All of the 31,450 acres of public land in the WSA would be open to mineral entry. A total of 40 acres of split-estate land would be open to mineral exploration and development.

Energy Development

Casual exploration for oil and gas and geothermal resources is expected. An extensive exploration/development program is not anticipated due to the lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on energy development in the WSA.

Mineral Development

Since indirect geological evidence has revealed no mineral resources with a moderate or high potential for occurrence, no exploration or development is expected.

Conclusion: There would be no impact on mineral development in the WSA.

Impacts on Utility Corridor Routing

The proposed utility corridor, which crosses 7 miles of the southeastern corner of the WSA, would be designated and the 500-kV powerline could be constructed.

Conclusion: There would be no impact to the proposed utility corridor.

Impacts on Vegetation

Little or no change would take place to vegetative composition or ecological status on most of the WSA. Construction of an access road in conjunction with the 500-kV powerline will remove vegetation on 20 acres. Vegetation will also be removed on three acres as a result of construction of pads for the powerline tower sites. Construction of 5 miles of pipeline and five watering locations would directly disturb 40 acres. Reservoir construction would directly disturb five acres. Congregation of livestock around the reservoir and watering locations may impact vegetative composition on an additional 50 to 75 acres, depending on seasons of use and number of livestock. Utilization around such water developments may be as high as 80 to 90 percent. Utilization of key forage species within the remainder of the WSA is not likely to significantly increase from allocation of the 183 AUMs that are currently available but unallocated, due to the remoteness from water of the portions of the pastures in the WSA. Some increase in utilization levels, possibly 5 to 10 percent, may be expected, resulting in less residual ground cover and a more grazed appearance to the range. Allocation of an additional 1,200 AUMs resulting from the wildfire and pipeline construction would increase utilization levels of the key forage species by 20 to 30 percent overall.

Conclusion: There would be an increase in utilization with a corresponding decrease in residual ground cover over approximately 30 percent of the area, resulting in a more grazed appearance. Vegetation would be directly disturbed on 68 acres from projected developments.

Impacts on Wildlife

Wildlife habitat for approximately 100 mule deer, 20 antelope, a small population of sage grouse and nongame species would be maintained under the no wilderness/no action alternative. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 1,383 additional AUMs would not affect the minimum forage level identified by ODFW as necessary for their deer and antelope population goals. Minor seasonal disturbances to mule deer, antelope, sage grouse and Townsend’s big-eared bat would occur as a result of casual mineral exploration and vehicle use of 12 miles of new roads.

Development of the range pipeline, one reservoir and four guzzlers would provide 10 additional water sources for mule deer, antelope, sage grouse and nongame species, resulting in some population increases.

Conclusion: Wildlife habitat and populations would be maintained on 31,490 acres designated wilderness and increased near new water sources.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated resulting in an increase in livestock forage allocation of 998 AUMs within affected pastures. Approximately 183 of these AUMs are in the WSA.
Approximately 1,200 additional AUMs would be allocated to livestock as a result of a wildfire which removed brush from 18,000 acres suitable for livestock use, and construction of the proposed water developments. A new reservoir and 5 miles of pipeline would be constructed to distribute livestock into areas that have forage but lack water.

Vehicle use would continue on the 0.25-mile way. Vehicles and heavy equipment would be used cross-country as needed to maintain the 2 miles of fence and two reservoirs. Due to the rough terrain and lack of access most of the daily livestock management would continue to be done on horseback.

Conclusion: A increase of 998 AUMs of currently available but unallocated forage would be allocated to livestock, with 183 of these AUMs in the WSA. Due to a wildfire, an increase of 1,200 additional AUMs would be allocated to livestock in the WSA.

Impacts on Recreation Use

Motorized recreation use would continue on the 0.25-mile way within the WSA. Cross country recreational vehicle use would continue to be prohibited by vehicle designation. Construction of water developments for livestock would increase wildlife populations and improve hunting opportunities. Construction within the utility corridor may damage some lava tube caves. Overall, however, there would be little change in the total recreation use of the area.

Conclusion: The area's low level of recreation use (under 100 visitor use days per year) would not be affected.

Impacts on Local Personal Income

Livestock grazing would increase by 2,198 AUMs. Overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be an increase of $26,376 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $26,000.

Unavoidable Adverse Impacts of Proposed Action

Under the proposed action (No Wilderness/No Action), wilderness values including solitude, primitive and unconfined recreation and naturalness would be adversely impacted by the projected development. The additional allocation of 998 AUMs (183 in the WSA) of currently available forage and 1,200 AUMs resulting from the wildfire would increase trampling around watering areas and reduce the natural appearance of the area. Construction of the livestock reservoir, 5 miles of pipeline and access road, five water troughs, a storage tank and four wildlife guzzlers would influence the naturalness on approximately 1,000 acres. Development of the utility corridor would visually influence wilderness values on an additional 4,500 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the proposed action, all short-term uses would continue and the future development options (including range, wildlife and utility corridor developments) would remain open. Long-term productivity of wilderness values would be directly lost on 68 acres with surface disturbance from construction of one reservoir, 5 miles of pipeline with five troughs and an access road, four guzzlers, 7 miles of a 500-kV powerline and its access road, and indirectly lost on 5,500 acres, with further declines from other uses over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the proposed action, range, wildlife and utility corridor developments would result in an irreversible commitment of the wilderness resource on 68 acres, as well as an irretrievable commitment of some of the area's unique lava formations.
5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

Because the WSA is entirely public land, has a relatively large size and concentrated configuration, and possesses a large degree of naturalness and rugged terrain, the area would be easily manageable as a wilderness.

Rationale for the Selection of the Proposed Action

The no wilderness/no action alternative is preferred because the benefits of retaining opportunities to increase livestock forage, more widely distributing livestock through construction of the reservoir and pipeline, and developing the utility corridor outweigh the benefits of preserving the area as wilderness. The northern portion of the area will continue to be protected by the Jordan Craters RNA/ACEC designation.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: Townsend's big-eared bat is a Federal candidate for listing as a threatened and endangered species and may occur in the lava tube caves, yet it is not mentioned. Response: Section 3, Affected Environment and Section 4, Environmental Consequences have been expanded to include this species under Special Features.

Comment: The pristine condition of sagebrush and native grass communities in the WSA is not adequately recognized as an outstanding feature. Response: A natural wildfire that occurred in 1986 destroyed the sagebrush in the entire WSA and reset conditions to an earlier successional stage that consists mainly of bluebunch wheatgrass and forbs. Section 3, Affected Environment, regarding Special Features and Vegetation addresses the noteworthy features of the plant communities in the WSA.

Comment: The unique qualities of the lava flows in the WSA are not adequately described. Response: Section 3, Affected Environment regarding Special Features which describes the unusual and outstanding qualities of the lava flows.

Comment: The WSA should be combined with the Jordan Craters WSA (3-128) because together they constitute an integrated habitat unit. Response: Closing the boundary road between the Clarks Butte and Jordan Craters WSA was not analyzed because the road is one of the primary access routes from the populated Jordan Valley area to the more remote Mud Lake area. It is used by crews who maintain numerous range projects throughout the Mud Lake area, and closing this road would cause a 15- to 30-mile detour. See the discussion in Section 2, Description of the Alternatives, regarding alternatives considered but not analyzed.
Table 1. Summary of Proposed Management Under Each Alternative, Clarks Butte WSA (OR-3-120)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>31,490</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>31,490</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>31,450</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Utility Corridor Developed</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Structural Wildlife Projects Developed: Guzzlers (number)</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs (number)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Watering troughs (number)</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Pipelines (miles)</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Increased Forage Allocation from Projects (AUMs)</td>
<td>0</td>
<td>1,200</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated (AUMs)</td>
<td>0</td>
<td>998²</td>
</tr>
</tbody>
</table>

¹Except for a 0.5-mile road and a 0.25-mile way, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
²Of the 998 AUMs allocated, approximately 183 AUMs would be on portions of pastures within the WSA.
<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 31,490 acres would protect and enhance the wilderness qualities and special features of the area.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 5,500 acres (18 percent) of the WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy and mineral development is expected.</td>
<td>There would be no impact on energy and mineral development in the WSA.</td>
</tr>
<tr>
<td>Utility Corridor Routing</td>
<td>The utility corridor would not be designated in the WSA and the powerline would be rerouted 2 to 3 miles to the south, adding negligible length to the route.</td>
<td>There would be no impact to the proposed utility corridor.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Vegetative conditions would be maintained throughout the WSA.</td>
<td>There would be an increase in utilization, with a corresponding decrease in residual ground cover over approximately 30 percent of the area, resulting in a more grazed appearance. Vegetation would be directly disturbed on 68 acres from projected developments.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 31,490 acres designated wilderness.</td>
<td>Most habitat for game and nongame species would be maintained throughout the WSA, however 68 acres would be lost due to road construction associated with the pipeline and powerline.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>A livestock allocation increase of 998 AUMs of currently available forage (183 AUMs in the WSA) would be foregone. An additional projected increase of 1,200 AUMs would also be foregone. Vehicle use of 0.25 mile of way would be precluded with minor inconvenience to livestock operators.</td>
<td>An increase of 998 AUMs of currently available but unallocated forage would be allocated to livestock with 183 of these AUMs being in the WSA. An increase of 1,200 additional AUMs due to a wildfire would be allocated to livestock in the WSA.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area's recreational use level of less than 100 visitor use days per year would not be affected. Wilderness designation would ensure continuation of primitive, non-motorized forms of recreational use.</td>
<td>The area's low level of recreation use (less than 100 VD per year) would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $13,000.</td>
<td>Annual local personal income would increase by approximately $26,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Clarks Butte WSA (OR-3-120)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold and silver</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
</tbody>
</table>

**Level of Potential**

O - No indication for accumulations of energy/mineral resource  
L - Low potential for accumulations of energy/mineral resource  
M - Moderate potential for accumulations of energy/mineral resource  
H - High potential for accumulations of energy/mineral resource

**Level of Certainty**

A - Insufficient data or no direct evidence  
B - Indirect evidence available  
C - Direct evidence but quantitatively minimal  
D - Abundant direct and indirect evidence

### Table 4. Existing and Potential Livestock Use, Clarks Butte WSA (OR-3-120)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs In Allot</th>
<th>Percent of Period of Use</th>
<th>Allot. In WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Cow Creek (0902)</td>
<td>11,494</td>
<td>04/01-03/31</td>
<td>22</td>
<td>989</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income for the Clarks Butte WSA (OR-3-120) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>+2,198</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>26,376</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>26,376</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private
- BLM Surface-State or Private Subsurface (Split Estate)
- Edge of Lava

U.S. Department of the Interior
Bureau of Land Management
Vale District
Clarks Butte WSA
OR-3-120

LAND OWNERSHIP

MAP 2
Clarks Butte WSA, OR-3-120. Central portion of the WSA looking north from Lave Butte across the lava fields toward Clarks Butte. Within area recommended suitable under the all wilderness alternative and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.

Clarks Butte WSA, OR-3-120. Central portion of the WSA from Lava Butte looking east toward ranches. Foreground suitable under the all wilderness alternative and nonsuitable under the proposed action (no wilderness/no action) alternative; background suitable under all wilderness and nonsuitable under the proposed action (no wilderness/no action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Appendix for Jordan Craters Wilderness Study Area (OR-3-128)

1. Introduction

General Description of the Study Area

The Jordan Craters Wilderness Study Area (WSA) is located 15 miles west of U.S. Highway 95 in Malheur County, Oregon, approximately 20 miles northwest of Jordan Valley, Oregon (see Map 1).

The study area contains 27,900 acres of public land, consisting mainly of the Jordan Craters Lava Flow (see Map 2). An 80-acre private parcel is located within the WSA at Crater Lake in the west-central portion of the study area. In addition, a 40-acre parcel of private land is located at the end of a dead-end road to Coffee Pot Reservoir in the north part of the WSA. State lands, including the shoreline of Lower Cow Lake, form the eastern boundary. The northern boundary is formed by a county gravel road.

BLM high standard dirt roads form the southern and western boundaries. The WSA includes 25 acres of split-estate land.

The WSA contains four dead-end roads totaling 5 miles, and three ways totaling 3 miles in length. However, one 0.25-mile way has been fenced off, a second 0.25-mile way is almost completely revegetated, and the third extends 2.5 miles over extremely rough, broken terrain.

Most of the WSA is covered by the bare rock surface of a geologically recent extrusion of basaltic lava. It averages 4,450 feet in elevation and slopes gently toward the southeast. The surface is irregular with innumerable domes, cracks and sinks. Depressions in the southeastern tip of the flow fall below the water table and a number of water-filled potholes and ponds have been formed. A larger depression forms Batch Lake. Vegetation on the lava is composed principally of lichens and mosses.

Topography adjacent to the lava flow varies from flat to gently-rolling. A north-south ridge, having the highest elevations in the WSA, borders the lava flow on the west. The predominant vegetation outside the flow is a big sagebrush/bluebunch wheatgrass community.

Interrelationships

Most of the WSA overlaps the Jordan Craters Research Natural Area (RNA) and Area of Critical Environmental Concern (ACEC) (see Map 3). Only the western portion and four peninsula-like fingers along the eastern boundary of the WSA are not included. The RNA/ACEC also extends beyond the northern and southern boundaries of the WSA.

The RNA was designated in 1975 to protect unique ecological, geological and biological features for scientific and educational endeavors. The ACEC was designated in 1983 to provide special management to protect these features. Special management for the ACEC includes:

- protection from surface-disturbing activities,
- restricting off-road vehicle (ORV) use to designated routes,
- posting road signs to deter off-road travel and unauthorized mineral extraction,
- imposition of a no-surface occupancy restriction on mineral and energy leasing and a closure to saleable materials such as cinder and slab rock lava, and
- managing livestock grazing to protect pristine vegetation and the present condition of the three vegetation type cells identified through the Natural Heritage Program.
These restrictions currently apply to the portion of the study area within the ACEC and would continue to apply whether or not the area is designated wilderness.

The Jordan Craters WSA is adjacent to the Owyhee Breaks WSA (OR-3-59) on the north and the Clarks Butte WSA (OR-3-120) on the south. They are separated from the Jordan Craters WSA by roads.

The WSA is located within the Oregon Department of Fish and Wildlife (ODFW) Owyhee Wildlife Unit which contains approximately 3,026-square-miles of land area. The WSA supports summer populations of approximately 100 mule deer and 20 pronghorn antelope. ODFW manages the Owyhee Unit to produce 15 bucks per 100 does of mule deer and 30 bucks per 100 does of antelope. A wide variety of nongame species occupy the study area due to the availability of standing water in ponds and lakes. The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species and Malheur County has not identified any conflicts between the proposed action and County plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area’s wilderness values,
- impact on privately-owned inholdings in the WSA (effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on mineral exploration and development,
- impact on livestock grazing levels,
- impact of visitor use on the area’s unique and fragile lava features, and
- impact on recreation use levels.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981); professional judgment regarding approximate project locations; general site conditions; and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness
- partial (proposed action)
- no wilderness/no action

An alternative which would combine this WSA with the Clarks Butte WSA by closing the road between them is not analyzed. The road provides access from the populated Jordan Valley to the more remote Mud Lake area. The road is not being considered for closure because it is used by crews who maintain several range projects throughout the Mud Lake area. Closing the road would cause a detour for 15 to 30 miles.

Another alternative that was raised but not considered would incorporate the WSA into the National Park System. This proposal is outside the scope of this document and is not analyzed.

All Wilderness

The all wilderness alternative would recommend all 27,900 acres of public land in the study area suitable as wilderness (see Map 2). For purposes of analysis, it is assumed the two inholdings would remain under private ownership, the four dead-end roads would remain open and the mineral estate of the split-estate land would not be acquired.
Energy and Mineral Development Actions

Wilderness designation would close 27,875 acres within the WSA to all forms of mineral entry. A total of 25 acres of split-estate land would be open to mineral exploration and development. In addition, 120 acres of private inholdings would be open to mineral exploration and development at the landowners’ discretion. Exploration for oil and gas and geothermal resources, which have a moderate potential for occurrence, would be prohibited on 27,875 acres. Due to a lack of geologic evidence, no known petroleum-bearing formations or geothermal resources, a relatively-thick volcanic cover, and the absence of any existing mineral leases, only casual exploration for oil and gas and geothermal resources is postulated on the 145 acres of private and split-estate lands.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 1,693 AUMs within the portions of the five allotments in the WSA. The seasons of use would remain as identified in Table 4. This use presently is very limited in the WSA portion of the allotments. Management of livestock and maintenance of 6 miles of fence would be conducted mainly on horseback. The only vehicle routes for maintenance of livestock projects are the four dead-end roads. Mechanized equipment would be used cross-country once every 5 to 10 years to maintain the two reservoirs, which have no existing access.

In order to provide water for livestock and improve their distribution, a pipeline would be constructed from Lava Well in the south-central portion of the WSA, towards the south into the Clarks Butte WSA (OR-3-120). The pipeline would traverse 0.25 mile of the WSA, following the route of an existing road.

Recreation Management Actions

Motorized recreation use on the entire 27,900-acre WSA (including a 2.5-mile way) would be precluded, and the ways would be allowed to revegetate. Existing dead-end roads totaling 5 miles would be left open. Current recreational use is estimated to be 800 visitor days per year. Current vehicle use is limited to existing roads and ways.

Enhanced Wilderness

Under the enhanced wilderness alternative, all 27,900 acres of public land would be recommended suitable as wilderness and the four dead-end roads totaling 5 miles, would be closed (see Map 4). An attempt would be made to acquire the two parcels of private property (120 acres) within the WSA and the mineral estate of the parcel of split-estate land (25 acres) along the northern boundary. These parcels and mineral estate could be acquired by purchase or exchange with owners, assuming that they are willing to cooperate. Assuming acquisition of the private parcels, the total area recommended suitable under this alternative would be 28,020 acres.

Energy and Mineral Development Actions

Wilderness designation would close 28,020 acres to mineral entry assuming acquisition of 25 acres of mineral estate and 120 acres of private land. Exploration for oil and gas, and geothermal resources (which have a moderate potential for occurrence) would be prohibited.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.
Livestock Management Actions

Livestock grazing use would continue at the current level of 1,693 AUMs. Vehicle use for day-to-day livestock management on 3 miles of ways and 5 miles of dead-end roads would be precluded. Management of livestock and maintenance of 6 miles of fence would be conducted mainly on horseback. Mechanized equipment would be used on an average of once every 5 to 10 years to maintain two reservoirs and two wells. Cross-country travel would be required to maintain the reservoirs which have no existing access, and the wells which are located at the ends of dead-end roads that would be closed under this alternative.

Recreation Management Actions

The entire 28,020 acres, including a 2.5-mile way and 5 miles of dead-end roads, would be closed to motorized vehicle use. Currently, vehicle use is limited to existing roads and ways and overall recreation use is estimated to be approximately 800 visitor days per year.

Partial Wilderness (Proposed Action)

Under the partial alternative, 23,265 acres would be recommended suitable as wilderness, assuming acquisition of 40 acres of private land and 25 acres of mineral estate on the split-estate land. The area would include all of the lava flow plus approximately 9-square-miles of adjacent rangeland northwest and south of the lava (see Map 5). A total of 4,675 acres would be recommended nonsuitable. The western boundary would be defined as the dead-end road to Crater Lake and the way to Mud Lake. The two ways, totaling 0.5 miles, are not presently being used and would be closed to motorized vehicles.

Energy and Mineral Development Actions

Wilderness designation would close 23,265 acres within the WSA to mineral entry, assuming acquisition of the mineral estate on 25 acres of split estate land and 40 acres of private land. Exploration for oil and gas and geothermal resources, which have a moderate potential for occurrence, would be prohibited on 23,265 acres.

The 4,675 acres of public land recommended as nonsuitable for wilderness would be open to mineral entry. In addition, 80 acres of private land situated along the southwestern border of the suitable portion of the WSA would be open to mineral exploration and development at the landowners' discretion. Due to a lack of geologic evidence, no confirmed petroleum-bearing formations or geothermal resources, a relatively-thick volcanic cover, and the absence of any existing mineral leases, only casual exploration for oil and gas and geothermal resources is postulated on the 4,675 acres of public lands recommended nonsuitable and the 80 acres of private land.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with the guidelines established in the BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review and development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 1,693 AUMs. Vehicle use for livestock management and maintenance of 6 miles of fence and two wells would continue on the 2.5-mile way and 5 miles of dead-end roads in the WSA. The roads are used 15 to 20 times per year to check livestock, spread salt, maintain facilities and operate wells. The way is used only rarely, up to five times per year. Heavy equipment would be used cross-country once every 5-10 years to maintain two reservoirs, one is located within the area recommended suitable under this alternative, the second is within the area recommended nonsuitable.

In order to provide water for livestock and improve their distribution, a pipeline would be constructed from Lava Well in the south-central portion of the WSA, towards the south into the Clarks Butte WSA (OR-3-120). The pipeline would traverse 0.25 mile of the WSA, following the route of an existing road.
Recreation Management Actions

In the suitable portion, 23,265 acres would be closed to motorized vehicle use. Two ways, each 0.25 miles in length, would be closed to motorized vehicle use and allowed to revegetate. A 2.5-mile way and 5 miles of dead-end roads would remain open. Current recreation use is estimated to be approximately 800 visitor days per year.

On the nonsuitable portion of 4,635 acres, vehicle use would continue to be limited to existing roads and ways.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 27,875 acres of public land would be open to mineral entry. In addition, the 25 acres of split-estate land would be open to mineral exploration. As the WSA has no confirmed petroleum-bearing formations or geothermal resources, a relatively-thick volcanic cover and no current mineral leases, only casual exploration is postulated for these energy resources.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

An additional 1,164 AUMs of livestock forage currently available but unallocated would be allocated to livestock. This increase involves the entire WSA plus portions of pastures extending outside the WSA. Approximately 96 of the additional AUMs would be in the WSA.

Vehicle use for livestock management and maintenance of 6 miles of fence and two wells would continue on the 2.5-mile way and 5 miles of dead-end roads in the WSA. The roads are used 15-20 trips per year to check on livestock and range developments, to spread salt and to maintain and operate facilities. The way is used only rarely, up to five times per year. Cross-country travel would be required every 5-10 years to maintain two reservoirs, which have no existing access.

In order to provide water for livestock and improve their distribution, a pipeline would be constructed from Lava Well in the south-central portion of the WSA, towards the south into the Clarks Butte WSA (OR-3-120). The pipeline would traverse 0.25 mile of the WSA, following the route of an existing road.

Recreation Management Actions

Vehicle use on the entire WSA would remain limited to existing routes. Five miles of dead-end roads and the 2.5-mile way would remain open to motorized recreation use. Current use is estimated to be 800 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only the major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The Jordan Craters WSA is in a highly natural condition. The lava flow occupying most of the eastern three-quarters of the WSA is essentially devoid of any human imprints, nor is it subject to any outside sights and sounds. Most signs of human activity are scattered around the perimeter of the WSA except for a relatively-high concentration of unnatural features in the southwestern portion.
Unnatural features inside the study area include four fences, one rock corral, two reservoirs, three ways totaling 3 miles, four dead-end roads totaling 5 miles, one cabin at Crater Lake and remnants of a short, dirt access bridging a finger of lava. These features influence about three percent percent of the WSA. Two of the three ways, totaling 0.5 miles, are currently revegetating from lack of use.

Developments outside the WSA slightly diminish the naturalness of the WSA, including developments related to livestock management and two old cabins.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The configuration, large size and broken topography of the WSA provide outstanding opportunities for solitude in the eastern three-quarters of the WSA.

Topography along the northern, western and southern boundaries provides less effective screening. These areas, along with Coffee Pot Crater, Cow Lakes, Crater Lake and Batch Lake, receive the highest visitor use; consequently, they provide the least opportunities for seclusion.

Sights and sounds of activities outside of the WSA include vehicle travel on boundary roads and dead-end access roads, recreation at Cow Lakes, ranching activities to the east and southeast of the WSA, and military aircraft training flights overhead. These intrusions are generally brief or very distant and do not penetrate far into the WSA.

The eastern three-quarters of the WSA offers excellent opportunities for exploratory and recreational spelunking. A complete inventory of the lava caves has not been conducted. Only the caves near Coffee Pot Crater have been explored. The WSA offers exceptional sightseeing of the botanic, geologic and ecologic features throughout the lava field area and excellent opportunities for bird watching and nature photography around Batch Lake. Day hiking, backpacking and camping are usually associated with these activities.

Special Features

The eastern three-quarters of the Jordan Craters WSA contains basaltic lava that may be between 4,000 and 9,000 years old. Because the lava flow is relatively recent, there has been minimal erosion of such unique volcanic features as kipukas (isolated islands of exposed land that are older than the surrounding lava flows), pahoehoe (smooth) lava, pressure ridges, lava channels, pits, tubes and blisters, spatter cones and a large cinder cone. The area represents a preserved example of the volcanic aspects of geologic history.

Five unique and unusual habitats are associated with the Jordan Craters flow:

- The abrupt transition zone between the lava and the surrounding rangeland is characterized by a diverse natural community. Vegetation consists of big sagebrush and bunchgrasses kept relatively lush by runoff from the lava surface onto deep soils built up along the lava's edge. This provides cover and forage for a variety of mammals, birds and reptiles.
- The lava surface offers a harsh habitat of extreme climatic and soil conditions with little available water. Vegetation consists principally of lichens and mosses. Animals include a few small birds and rodents.
- The lava flow subsurface contains a number of collapsed tube segments. Some of these segments provide stable temperature and humidity which promote the growth of mosses and ferns not normally found in the harsh, dry climate of the region. Townsend's big-eared bat, which inhabits caves in the WSA, is a Federal Candidate for listing under the Endangered Species Act.
- The ground water surfacing in pools, ponds and lakes of the Batch Lake and Crater Lake area support unusual vegetation and an abundance of diverse wildlife. Several unusual bird species are drawn to the area at various times of the year, including white pelican, black-crowned night heron, long-billed curlew (a Federal Candidate for listing under the Endangered Species Act), northern bald eagle (federally listed as threatened in Oregon) and sandhill crane (see Map 6).
- The lava flow contains two small kipukas (of about 12 acres each) and nearly surrounds a large peninsula of rolling hills in the southwestern portion of the WSA. The kipukas have probably never been grazed by livestock and are therefore valued as unique examples of a pristine sagebrush steppe environment. The peninsula has received only occasional light grazing because of its isolated nature and lack of water.

Results of previous scientific studies and the fact that the WSA includes part of the Jordan Craters RNA and ACEC indicate the scientific and educational importance of the WSA.
Three plant species found in the lava tubes and fissures of the WSA are of special interest. They are *Polystichum scopulinum*, *Dryopteris filix-mas* and *Muhlenbergia minutissima*. The Vegetation section further discusses these plants.

Two cultural sites have been located within the WSA. Both were campsites and one has petroglyphs immediately adjacent to it.

The eastern three-quarters of the WSA offers a variety of unique and interesting scenery due primarily to the lava flows. Scenic qualities in this portion of the WSA are outstanding.

**Diversity in the National Wilderness Preservation System (NWPS)**

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass community.

There is one standard metropolitan statistical area with a population over 100,000 located within five hours’ driving time of the study area: Boise, Idaho.

**Energy and Mineral Development**

Energy and mineral resources were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment sampling by BLM geologists. Technical details of the findings of the evaluation are in a BLM report titled “Assessment of Geology, Energy, Mineral Resources of Jordan Craters-Clarks Butte Geologic Resource Area.”

The WSA is within the Jordan Craters-Clarks Butte geologic resource area which has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Surface geologic material found in the Jordan Craters WSA consists largely of Quaternary and Tertiary basalt flows and flow breccias, with lesser amounts of rhyolitic and dacitic flow, flow breccias and tuffaceous sedimentary rocks. Although no pre-Tertiary rocks are known to be exposed in the WSA, the area is within the western margins of late Paleozoic and Triassic sedimentary basins, and both Mesozoic and Paleozoic sediments may occur at depth. No metallic mineralization is known in the WSA.

Table 3 shows the energy and mineral classification for the WSA.

**Energy Resources**

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of geothermal resources. Because the Jordan Craters WSA is within an area of geologically-recent volcanic activity and above normal heat flow, it is generally considered favorable for thermal waters for direct heat use.

Again based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of buried marine sediments.

As of October 16, 1987, there were no oil and gas or geothermal leases in the WSA.

**Mineral Resources**

Based upon indirect evidence, no mineral resources have been identified that have a moderate or high potential for occurrence.

As of October 16, 1987, there were no mining claims in the WSA.

**Vegetation**

About two-thirds of the WSA is a lava flow which is essentially devoid of vegetation. The remainder of the WSA is a Wyoming big sagebrush/bluebunch wheatgrass plant community, in mid seral stage. Vegetation is pristine on the two kipukas and the large peninsula in the southwestern WSA.

Three plants found within lava tubes and fissures in the lava flow are uncommon to this area and are of special interest. *Dryopteris filix-mas*, commonly known as male fern, and *Muhlenbergia minutissima*, or annual dropseed, are considered by the Oregon National Heritage Data Base as threatened in Oregon.
but more common or stable elsewhere. *Polystichum scopulinum*, commonly called Eaton hollyfern, is considered rare in Oregon.

**Wildlife**

Over 300 species of wildlife have been identified within the WSA. This unusually high number of animal species is due to the variety of upland and reservoir riparian habitats available.

The WSA supports summer populations of approximately 100 mule deer and 20 pronghorn antelope.

Eight species of bats have been observed in the unit, including Townsend’s big-eared bat, which is as a Federal candidate for listing under the Endangered Species Act. Townsend’s big-eared bat seems to be restricted to lava tubes and small caves such as those found in the WSA.

The rangeland/lava edge provides habitat for a wide variety of nongame bird, mammal and reptile species common within the Intermountain region.

The most diverse and heavily-populated wildlife communities are associated with Batch Lake and Crater Lake. Open water and marshes are rare within the lava flow region and therefore strongly attract wildlife use. An estimated 200 species of birds use open water areas within and immediately adjacent to the study area (see Map 6). A wide variety of spring and fall migrating birds are temporary occupants. Several unusual bird species use the available aquatic habitats for nesting or foraging, including white pelican, sandhill crane, black-crowned night heron and long-billed curlew (a Federal candidate for listing under the Endangered Species Act). The northern bald eagle, federally listed as threatened in Oregon, uses Batch Lake during fall and spring passage. Beaver, otter and muskrat are commonly seen at Batch Lake.

**Watershed**

Perennial surface water is present within the WSA at Batch Lake and Crater Lake. In the western portion of the WSA, surface waters draining a north-south trending ridgeline flow south and feed into Crater Lake. The lake butts up against the west side of the lava field. Due to the rocky and rough nature of the lava, the east side of the lake is inaccessible to cattle. The lake is heavily impacted by livestock grazing on the accessible north and west shores which fall within an 80-acre private parcel. Several other small tributaries to the north of the WSA flow south and become subsurface as they reach the edge of the porous lava flow. To the southeast, Upper and Lower Cow Lakes (outside the WSA) contribute to the subsurface flow which feeds Batch Lake and the surrounding small ponds, marshes and water-filled fissures. Outflow from these features continues subsurface towards the south, appearing as intermittent surface flow along the south edge of the lava flow. Due to their locations within the rough and rocky lava field, Batch Lake and the surrounding ponds and marshes remain inaccessible to cattle and are therefore, in relatively pristine condition.

**Livestock Grazing**

Portions of five grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for grazing by domestic livestock. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include two reservoirs, a rock corral, four fences (6 miles total length) and a cabin at Crater Lake.

Livestock operators use motor vehicles on the interior dead-end roads to inspect and maintain the wells, reservoirs and fences, to check on livestock and spread salt. Use of the dead-end roads is limited to approximately 15-20 trips per year. The roads also provide access to livestock handling facilities on private land. The one 2.5-mile way is used only rarely, up to five times per year. Due to topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback.

**Recreation Use**

Notable recreation activities occurring in the WSA are sightseeing, spelunking (caving), birding and nature photography. Hunting and fishing take place primarily at Batch Lake. Approximately 650 visitors annually drive to Coffee Pot Crater. Motorized travel is confined to existing roads and ways due to a limited-vehicle designation. Total recreation use is estimated to be 800 visitor days per year.

**Local Personal Income**

Livestock use at the current level of 1,693 AUMs and recreation use totaling 800 visitor days per year are the primary resource outputs that generate economic
activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $20,316 for livestock grazing and $9,600 related to recreation use of the WSA, for an overall total of $29,916. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 27,900 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All of the WSA would be designated wilderness, and wilderness values within the entire 27,900 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including unique lava formations, caves and unique vegetation would be protected, as would Townsend's big-eared bat (a Federal candidate for listing under the Endangered Species Act) and unusual bird species such as white pelican, black-crowned night heron, sandhill crane, long-billed curlew (a Federal candidate for listing under the Endangered Species Act) and northern bald eagle (Federally-listed as threatened in Oregon).

Naturalness

The WSA's high degree of naturalness would be protected and enhanced by wilderness designation. The 2.5-mile way, influencing approximately 460 acres, would be allowed to revegetate and vegetation would encroach into the two parallel vehicle tracks making the ways unnoticeable in three to five growing seasons. A proposed 0.25-mile water pipeline from Lava Well would have little impact on naturalness since it would be constructed along an existing road.

Existing outstanding opportunities for solitude provided by the area's large size and relative lack of roads and ways due to the rugged lava flows, would be preserved. The area provides a large core area for people to hike into and experience solitude with no disturbance from vehicle use. Closure of the 2.5-mile way would enhance existing opportunities for solitude.

Primitive and Unconfined Recreation

Outstanding opportunities for primitive and unconfined recreation including hiking, birdwatching, photography, backpacking, hunting, sightseeing and spelunking would be protected. These opportunities would be further protected by the closure of the 2.5-mile way to motorized vehicle use.

Special Features

Wilderness designation would enhance and compliment the protection already afforded a portion of the area designated as an RNA in 1975 and an ACEC in 1983. These features include unique lava formations, unique plant and animal species associated with the lava flows and caves, and waterfowl and shorebird habitat (see Map 6). These features would be further protected by the closure of the 2.5-mile way to motorized vehicle use.

Conclusion: Wilderness designation of 27,900 acres would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 27,875 acres within the WSA to mineral entry. The 25-acre parcel of split estate and 120 acres of private inholdings would be open to mineral exploration and development.

Energy Development

Exploration for oil and gas and geothermal resources would be precluded on 27,875 acres. Exploration could occur on 25 acres of split-estate lands and on 120 acres of private inholdings. Due to the lack of geologic evidence to justify an extensive exploration/development program, no development is expected either in the WSA or on the split estate or private lands.
Conclusion: No impact to energy development is expected.

Mineral Development

Mineral exploration on 27,875 acres would be precluded. Exploration could occur on the 25 acres of split-estate lands, without surface occupancy, and on 120 acres of private inholdings. However, no exploration or development activity is expected.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation. Vegetative composition and ecological condition, which is in mid-seral stage, would not be changed because livestock grazing would be maintained at the current level. Pristine vegetation on the two kipukas and the large peninsula in the southwestern portion of the WSA would be protected. Unusual vegetation in the lava caves would also be protected.

Revegetation of the 2.5-mile way would improve ground cover slightly.

Conclusion: No change would take place to vegetation. The 2.5-mile way would revegetate.

Impacts on Wildlife

Wildlife habitat for a high diversity of animal species, including summer populations of 100 mule deer and 20 pronghorn antelope, migrating and nesting waterfowl and northern bald eagle, which is Federally listed as threatened in Oregon, would be protected and maintained under wilderness designation. Protection of the WSA’s caves, and marsh and upland areas would provide habitat for Townsend’s big-eared bat and long-billed curlew, respectively.

Conclusion: Habitat for a high diversity of wildlife species would be maintained throughout the WSA under this alternative.

Impacts on Watershed

Watershed would remain in good condition in the Batch Lake vicinity and remain static or continue to decline on private property on the north and west shores of Crater Lake.

Conclusion: No change from current watershed condition is expected under this alternative.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 1,693 AUMs in the WSA. Wilderness designation of the entire WSA would preclude the allocation of 1,164 AUMs of currently available but unallocated forage in the affected pastures because of the potential adverse impacts upon wilderness values (e.g. a reduction in residual ground cover and erosion of soil near water sources). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility maintenance on the 2.5-mile way would be precluded under wilderness designation. This would result in a slight inconvenience to livestock operators. Much of the area is inaccessible and management is accomplished by horseback. Heavy equipment would be used once every 5 to 10 years for maintenance of two reservoirs. This would involve 2 miles of cross country travel.

Construction of a 0.25-mile pipeline south, from Lava Well, would improve water availability for and distribution of livestock in the Clarks Butte WSA (OR-3-120). The pipeline would not increase the availability of water in the Jordan Craters WSA.

Conclusion: Construction of a 0.25-mile pipeline will enhance water availability for and distribution of livestock in the Clarks Butte WSA (OR-3-120). An increased allocation of 1,164 AUMs of currently available forage would be foregone.

Impacts on Recreation Use

The 2.5-mile way that would be closed under this alternative currently receives very little use from recreationists. The most popular areas would remain accessible to vehicles on 5 miles of dead-end roads. As the public becomes aware of the area’s wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset any minor reduction of recreation use due to closure of the way.

Conclusion: The area’s recreational use level of 800 visitor days per year would not be affected. Wilderness designation would ensure continuation of primitive, non-motorized forms of recreational use.
Impacts on Local Personal Income

Livestock grazing would remain at 1,693 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected energy and mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $30,000.

Enhanced Wilderness

Recommended suitable for wilderness: 28,020 acres (Assuming that 120 acres of private land would be acquired)
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

The enhanced alternative would add 28,020 acres to the NWPS, assuming that 25 acres of mineral-estate and 120 acres of private inholdings are acquired as proposed under this alternative. Motorized use would be restricted on 5 miles of dead-end roads as well as a 2.5-mile way. All of the WSA would be designated wilderness, and wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including unique lava formations and caves, and the unique vegetative communities contained therein, as well as special animal species would be protected.

Acquisition of the mineral estate and private land would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The effects on naturalness would be similar to the all wilderness alternative except that the enhanced wilderness alternative also includes the acquisition of 25 acres of mineral estate and 120 acres of private land (if the owners are willing), and the closure of 5 miles of dead-end roads. The acquisition of 25 acres of non-Federal mineral estate and 120 acres of private inholdings would preclude any adverse impacts projected from energy exploration, thus preserving the naturalness of the area. Five miles of roads and a 2.5-mile way (influencing approximately 1,500 acres) would be closed and allowed to revegetate. Encroaching vegetation would make the roads and ways virtually unnoticeable in three to five growing seasons. Periodic use of the roads and ways for maintenance of existing developments on a 5 to 10 year basis would not affect their revegetation.

Solitude

The effects on solitude would be similar to the all wilderness alternative except for the additional enhancement of opportunities for solitude caused by the proposed road closures and acquisition. Eliminating motorized vehicle use on 5 miles of roads and the 2.5-mile way, and precluding projected energy entry and exploration on the 25 acres of non-Federal mineral estate and 120 acres of private inholdings, would increase solitude opportunities.

Primitive and Unconfined Recreation

The same increased opportunities for primitive and unconfined recreation resulting from closure of the 2.5-mile way identified under the all wilderness alternative, would occur under this alternative. In addition, acquisition of the 25 acres of non-Federal mineral estate and 120 acres of private inholdings would prevent projected energy exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on 5 miles of roads would have a minimal affect on primitive recreational opportunities since the roads receive little use.

Special Features

The impacts to special features would be the same as the all wilderness alternative with the exception of the acquisition of the 25 acres of non-Federal mineral estate and 120 acres of private inholdings, which would prevent projected mineral entry and exploration. In addition, this alternative would also close 5 miles of dead-end roads to motorized vehicle use, further protecting the scenery, special animals and unique lava features with their associated plant communities by limiting access to these features.

**Conclusions:** Wilderness designation of 28,020 acres would protect and enhance existing wilderness values.
Impacts on Energy and Mineral Development

Wilderness designation would close 28,020 acres to mineral entry, assuming acquisition of 25 acres of mineral estate and 120 acres of private inholdings.

Energy Development

Exploration for oil and gas and geothermal resources would be precluded on 28,020 acres.

Due to a lack of geologic evidence to justify an extensive exploration and development program, no development activities are projected to occur.

Conclusion: No impact to energy development is expected.

Mineral Development

Mineral exploration on 28,020 acres would be precluded. No exploration or development activity has been projected.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

The impacts upon vegetation under the enhanced wilderness alternative would be similar to the all wilderness alternative. Vegetative composition and ecological condition, which is in mid-serial stage, would not be changed because livestock grazing would be maintained at the current level. Pristine vegetation on the two kipukas and the large peninsula in the southwestern portion of the WSA would be protected. Unusual vegetation in the lava caves would also be protected.

Revegetation of the 2.5-mile way and 5 miles of dead-end roads would improve ground cover on approximately 12 acres in three to five growing seasons.

Conclusion: There would be no significant change to vegetation. A 2.5-mile way and 5 miles of roads would revegetate.

Impacts on Wildlife

Impacts would be similar to the all wilderness designation, with the added affect of less disturbance from motorized vehicles due to 5 miles of road closures.

Conclusion: Wildlife habitat and populations would be maintained on 28,020 acres.

Impacts on Watershed

Acquisition of the private property at Crater Lake would result in an improvement of the north and west shoreline conditions, and water quality of the lake because the period of grazing will be managed to minimize impacts. Livestock would be less concentrated and graze for a shorter period of time.

The watershed around Batch Lake would remain in good condition.

Conclusion: Watershed would remain in good condition in the Batch Lake vicinity, and would improve on the north and west shorelines of Crater Lake.

Impacts on Livestock Grazing

Livestock use would continue at current levels. Wilderness designation would preclude the allocation of 1,164 AUMs of currently available but unallocated forage in affected pastures because of the potential impact upon wilderness values (e.g., a reduction in residual ground cover and erosion of soil near water sources). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility maintenance on the 2.5-mile way and 5 miles of roads would be precluded resulting in minor inconvenience and slight additional expense to livestock operators. Vehicles would be used 5-10 times per year on 3 miles of roads for the maintenance of two wells. Heavy equipment would be used once every 5 to 10 years, to maintain two reservoirs and two wells. This periodic, infrequent use would involve 3 miles of road and 2 miles of cross-country travel.

A proposed pipeline which would follow the road from Lava Well south to provide water for livestock in the Clarks Butte WSA would be foregone.

Conclusion: A potential increase of 1,164 AUMs through allocation of currently available forage would be foregone. A 0.25-mile pipeline to improve livestock distribution inside the Clarks Butte WSA (OR-3-120) would also be foregone.

Impacts on Recreation Use

A slight additional decrease in recreational opportunities dependent upon motorized access and increased opportunities for primitive and unconfined recreation
above what was identified under the all wilderness alternative would occur under this alternative due to the closure of 5 miles of roads. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decrease in motorized vehicle-oriented recreational use.

Conclusion: The areas recreation use level of 800 visitor use days per year would not be affected. Wilderness designation would result in a change to primitive, non-motorized types of recreation use with no change in overall recreation levels.

Impacts on Local Personal Income

Livestock grazing would remain at 1,693 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected energy and mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $30,000.

Partial Wilderness (Proposed Action)

Recommended Suitable for Wilderness: 23,265 acres (assuming acquisition of 40 acres of private land)

Recommended Nonsuitable for Wilderness: 4,675 acres.

Impacts on Wilderness Values.

The partial wilderness alternative would add 23,265 acres to the NWPS including the acquisition of 40 acres of private property. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved on the portion of the WSA designated suitable for wilderness. Special features, including unique lava formations and caves, the unique vegetative communities, and special plant and animal species would be protected in the area of the WSA designated suitable. Acquisition of the mineral estate and the 40-acre private inholding would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

Wilderness designation would protect naturalness on 23,265 acres. The proposed 0.25-mile water pipeline from Lava Well would have little impact on naturalness since it would be constructed along an existing road.

Naturalness in the area recommended nonsuitable (4,675 acres) would be slightly reduced by projected energy exploration. Motorized vehicle use of 5 miles of roads and a 2.5-mile way would continue to detract from naturalness on 1,500 acres.

Solitude

In the suitable portion, opportunities for solitude would remain approximately the same as the all wilderness alternative through restriction of traffic and preclusion of energy exploration. Solitude would be further enhanced by precluding activity associated with exploration on the 40-acre private parcel and 25-acre split-estate land.

Short-term, local impairment of solitude would occur on the 4,675 acres recommended nonsuitable from casual energy exploration. Motorized vehicle use of 5-miles of dead-end roads and the 2.5-mile way would continue to impair solitude in the area designated nonsuitable.

Primitive and Unconfined Recreation

Little change would occur to primitive and unconfined recreation opportunities on the 23,265 acres recommended suitable.

Energy exploration on the 4,675 acres recommended nonsuitable would result in minor, short-term disturbance to primitive and unconfined recreation opportunities.

Special Features

Most of the special features for which the area has been designated an RNA/ACEC lie within the portion of the WSA recommended as suitable for wilderness designation. Therefore, the special features, including recent volcanic formations, special natural communities, uncommon plant and animal species (e.g. male fern, annual dropseed, Eaton hollyfern, Townsend's big-eared bat, white pelican, black-crowned night heron, long-billed curlew and northern...
bald eagle) would be protected by wilderness designation. Preclusion of energy exploration in the suitable portion would further protect special features in the area.

The portion of the WSA recommended nonsuitable would be temporarily affected by casual energy exploration.

**Conclusion:** Wilderness designation would result in protection of existing wilderness values on 23,265 acres. Wilderness values in the nonsuitable portion would be temporarily impacted by casual energy exploration, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 23,265 acres to mineral entry, including 25 acres of mineral-estate lands and 40 acres of private land, if acquired. A total of 4,675 acres of public land would be open to mineral entry and a total of 80 acres of private land would be open to energy/mineral exploration and development at the landowners' discretion.

**Energy Development**

Exploration for the oil and gas and geothermal resources would be precluded on 23,265 acres. Exploration could occur on 4,675 acres of public land plus 80 acres of private land in the nonsuitable portion of the WSA. However, only casual surface exploration, without development, is expected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Mineral exploration on 23,265 acres would be precluded. Exploration could occur on 4,675 acres of public land and 80 acres of private land in the nonsuitable portion of the WSA. However, no activity is projected.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Vegetation**

The impacts upon vegetation under the partial wilderness alternative would be similar to the all wilderness alternative. Vegetative composition and ecological condition, which is in mid-seral stage, would not be changed because livestock grazing would be maintained at the current level. Pristine vegetation on the two kipukas and the large peninsula in the southwestern portion of the WSA would be protected. Unusual vegetation in the lava caves would also be protected.

In the area recommended nonsuitable, projected activities would have a negligible impact on vegetation.

**Conclusion:** No change would take place to vegetation.

**Impacts on Wildlife**

Impacts would be the same as under the all wilderness designation. Wildlife habitat for a high diversity of animal species, including summer populations of 100 mule deer and 20 pronghorn antelope, migrating and nesting waterfowl and northern bald eagle (which is Federally listed as threatened in Oregon) would be protected and maintained under wilderness designation. Protection of the WSA's caves, and marsh and upland areas would provide habitat for Townsend's big-eared bat and long-billed curlew, respectively.

On the 4,675 acres recommended nonsuitable, projected activities would have a negligible impact on wildlife.

**Conclusion:** Wildlife habitat and populations would be maintained on 23,265 acres.

**Impacts on Watershed**

The 80-acre inholding surrounding Crater Lake would remain in private ownership and the lake would continue to be heavily impacted by livestock grazing on the accessible north and west shores.

Batch Lake would be included within the suitable area and would remain in relatively-pristine condition.

**Conclusion:** Watershed would remain in good condition in the vicinity of Batch Lake and continue to decline on the north and west shores of Crater Lake.

**Impacts on Livestock Grazing**

Livestock use would continue at current levels in the WSA. Wilderness designation would preclude the allocation of 1,164 AUMs of currently available but unallocated forage in affected pastures because of the potential impact on wilderness values (e.g. a reduction in residual ground cover and erosion of soil near water sources). Increases would not be allowed in pastures entirely or partially within the wilderness area.
Vehicle use for livestock management and facility maintenance would continue on 5 miles of dead-end roads and a 2.5-mile way.

In the suitable portion of the WSA, heavy equipment would be used once every 5 to 10 years to maintain one reservoir. This would involve 1.5 miles of cross-country travel. The second reservoir, which is located in the area recommended nonsuitable, would also require cross-country travel totaling 0.5 mile if no access road is constructed.

Construction of a 0.25-mile pipeline south, from Lava Well, would improve water availability for, and distribution of, livestock in the Clarks Butte WSA (OR-3-120).

**Conclusion:** A potential increased allocation of 1,164 AUMs through allocation of currently available forage would be foregone. Construction of a 0.25-mile pipeline would improve livestock distribution in the Clarks Butte WSA (OR-3-120).

**Impacts on Recreation Use**

As the public becomes more aware of the area’s wilderness values and opportunities, a slight increase in primitive, non-motorized use would occur.

Recreation use on the 4,765 acres recommended nonsuitable would not change.

**Conclusion:** The areas recreation use level of 800 visitor days per year would not be affected. Wilderness designation of 23,265 acres would result in a change to primitive, non-motorized types of recreation use.

**Impacts on Local Personal Income**

Livestock grazing would remain at 1,693 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected energy and mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $30,000.

---

**No Wilderness/No Action**

Area recommended suitable for wilderness: 0 acres  
Area recommended nonsuitable for wilderness: 27,900 acres

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 27,900 acre WSA would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, and the area’s special features, including unique lava formations and caves, the unique vegetative communities, and special plant and animal species would be subject to the projected activities such as casual energy exploration, a livestock grazing increase and construction of a pipeline.

Unique flora and fauna, and opportunities for educational and scientific research would be subject to the effect of projected management actions where they occur outside of the protected areas designated as ACECs or RNAs. (approximately 3,270 acres of the 27,900-acre WSA is not protected by the Jordan Craters ACEC/RNA designation).

Projected actions include a 0.25-mile water pipeline, an additional 96 AUMs and continued recreational vehicle use limited to existing roads and ways.

**Naturalness**

Continued vehicle use on 5 miles of dead-end roads and a 2.5-mile way would maintain the impact of vehicle tracks upon naturalness on approximately 1,500 acres (approximately two percent of the WSA). This influence would be primarily in the northwest portion of the WSA.

The allocation of an additional 96 AUMs within the WSA would increase trampling around water sources and increase utilization of forage resulting in a more grazed appearance with less residual ground cover.

Construction of the 0.25 mile of pipeline would have little impact on naturalness because it would be located along an existing road.

**Solitude**

Continued vehicle use on 5 miles of road and the 2.5-mile way would cause short-term local impairment of solitude opportunities adjacent to the activity. Short term impacts would also occur during the construction and maintenance of the water pipeline.
Primitive and Unconfined Recreation

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 5 miles of roads and the 2.5-mile way within the WSA.

Both energy exploration and an allocation of 96 additional AUMs in grazing use would reduce primitive recreation opportunities. Energy exploration would require vehicle access. Additional livestock use or longer periods of grazing would increase vegetation removal, trampling, fecal deposits and fouling of water, especially in the areas of livestock concentration (i.e. around water, shaded areas and on level ground) which are places where recreationists also concentrate.

Special Features

Continued vehicle use of the existing roads and the way would maintain the impacts upon the special features including unique lava features, caves and unique flora and fauna associated with the lava flows. These impacts include soil compaction, rutting disturbance to vegetative habitats and minor seasonal disturbance to special feature wildlife. With continued access, theft of lava rock may also become a problem.

Energy exploration activities would result in a minimal, short-term disturbance to the special features.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 1,500 acres (two percent) of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

All of the 27,900 acres of public land in the WSA would be open to mineral entry. The 25-acre parcel of split-estate land would be open to mineral exploration and development.

Energy Development

Due to lack of geologic evidence to justify an extensive exploration/development program for oil and gas and geothermal resources, only casual surface exploration (without development) is expected for these energy resources.

Conclusion: No impact to energy development is expected.

Mineral Development

As no minerals have been identified that have moderate or high potential for occurrence in the WSA, no activity is expected.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Little change would take place to vegetative composition or ecological condition on most of the WSA. Utilization of key forage species in affected pastures would increase from 23 percent to approximately 30 percent resulting in a somewhat more grazed appearance as a result of allocating 96 currently available but presently unallocated AUMs in the WSA.

Conclusion: Little change would take place to vegetation. Utilization of key forage species would increase, and the reduced residual ground cover would result in a more grazed appearance.

Impacts on Wildlife

Management constraints specified under ACEC/RNA designation would continue to provide adequate forage and cover for all wildlife. Mule deer and antelope populations and habitat would continue to be disturbed by occasional vehicle use on the existing 7.5 miles of existing roads and the way. The amount of disturbance is considered minor.

Additional allocation of 1,164 AUMs would leave sufficient forage to maintain existing populations of wildlife. Only 96 of the additional AUMs would be in the WSA. Increased grazing pressure would decrease residual ground cover and result in a reduction of nesting and escape cover for song birds and nongame mammals.

On the 3,270 acres of the WSA that do not have ACEC/RNA status, wildlife would sustain little or no impacts. Cross-country travel totaling 0.5 mile would cause short-term disturbance to wildlife every 5-10 years.

Conclusion: Nesting and escape cover would be slightly reduced.
Impacts on Watershed

Due to the rocky and rough nature of the lava fields, Batch Lake would remain unimpacted from livestock. Because Crater Lake is subject to intensive grazing, the poor conditions that exist along the north and west shoreline are likely to persist.

Conclusion: Watershed would remain in good condition in the Batch Lake vicinity and continue to decline on private property on the north and west shores of Crater Lake.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated resulting in a total increase in livestock forage allocation of 1,164 AUMs within affected pastures. Approximately 96 of the additional AUMs are within the WSA. Vehicle use for livestock management would continue on the 2.5-mile way and 5 miles of dead-end roads.

Construction of a 0.25-mile pipeline south, from Lava Well, would improve water availability for and distribution of livestock in the Clarks Butte WSA (OR-3-120). The pipeline would not increase the availability of water in the Jordan Craters WSA.

Conclusion: An increase of 1,164 AUMs of currently available but unallocated forage would be allocated. A 0.25-mile pipeline would be constructed from Lava Well into the Clarks Butte WSA (OR-3-120) to improve water availability for and distribution of livestock there.

Impacts on Recreation Use

Motorized recreation use would continue on 5 miles of dead-end roads and the 2.5-mile way within the WSA. Cross-country vehicle use would continue to be prohibited. Disruption of wildlife from energy exploration and an increase in livestock allocation would slightly disturb the natural setting for recreational activities, including hunting opportunities. Overall, however, minor declines in primitive recreation opportunities would be offset by minor increases in vehicle-dependent activities, thus maintaining current recreation use levels.

Conclusion: The area's recreation use level of 800 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would increase by 1,164 AUMs. Overall recreation use would remain at 800 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $13,968 per year, plus an unknown level of increase attributable to the projected energy and mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $14,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the proposed action (partial wilderness), energy exploration on 23,265 acres and a 1,164-AUM increase in livestock forage allocation would be foregone. Construction of a 0.25-mile pipeline would lead to unavoidable adverse impacts to wilderness values as a result of 0.25 acres of surface disturbance which would visually influence an additional 10 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, all short-term uses would continue and future development options, including casual energy exploration and range developments, would remain open in the 4,675-acre nonsuitable area. Long-term productivity of wilderness values would be lost on approximately 10 acres from pipeline construction. Long-term productivity of wilderness values would be preserved on the 23,265-acre portion of the WSA designated as wilderness.

Irreversible and Irretrievable Commitments of Resources

Under the proposed action, pipeline construction would result in an irreversible commitment of the wilderness resource on 0.25 acres. Wilderness designation of 23,265 acres would result in commitments of resources that would be neither irreversible nor irretrievable.
5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area is capable of being managed to preserve its wilderness characteristics in all of the alternatives. However, the portion recommended suitable is more easily managed than the area recommended nonsuitable as wilderness due to its rough terrain, lack of livestock allotments and accompanying developments. Manageability would be enhanced by closing the 2.5-mile way and acquiring the 40-acre private inholding. The acquisition would prevent potential adverse effects from access to the inholding.

Rationale for the Selection of the Proposed Action

The partial wilderness alternative is the proposed action because the benefits of preserving the area’s wilderness values—including the unique lava formations and associated flora and fauna and outstanding opportunities for solitude and primitive recreation—would outweigh the benefits of allocating an additional 1,164 AUMs of available forage.

This alternative recommends as suitable for wilderness the portion of the WSA with the highest wilderness values, recommends as nonsuitable a portion of the WSA with limited wilderness values and overall enhances manageability of the area as wilderness.

The partial wilderness designation excludes an area of limited wilderness values located west of the lava field and the 80-acre private parcel surrounding Crater Lake. The gently-rolling terrain of the western portion offers little opportunity for solitude and primitive recreation, and does not contain the special features previously described.

The portion that would be recommended suitable as wilderness contains high wilderness values and a natural setting only slightly influenced by unnatural features. There are outstanding recreation opportunities which include hiking, sightseeing, bird watching and spelunking. Outstanding opportunities for solitude are available because of the area’s broken topography.

The partial wilderness alternative would protect unique or special features including numerous extraordinary, young volcanic formations; uncommon vegetation at Batch Lakes, Fern Dome and the two kipukas; several unusual bird species including white pelican, black-crowned night heron, sandhill crane, long-billed curlew (a Federal candidate for listing under the Endangered Species Act) and northern bald eagle (Federally listed as threatened in Oregon); Townsend’s big-eared bats (a Federal candidate for listing under the Endangered Species Act) and an excellent opportunity for educational and scientific study of the area’s geologically young lava features and ecological relationships.

Wilderness designation would contribute to expanding diversity of the existing National Wilderness Preservation System through the addition of the WSA’s young lava fields with their unique features.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The WSA should be combined with the Clarks Butte WSA (OR-3-120) because together they constitute an integrated habitat unit. Response: The road defining the boundary between the Jordan Craters and Clarks Butte WSAs provides access from the populated Jordan Valley to the more remote Mud Lake area. The road is not being considered for closure because it is used by crews who maintain several range projects throughout the Mud Lake area. Closing the road would cause a detour of 15 to 30 miles. See discussion in Section 2, Description of the Alternatives, regarding alternatives considered but not analyzed.

Comment: The area has been studied for, or should have, National Park System status. Response: See
Section 2, Description of the Alternatives, for the discussion of alternatives considered but not analyzed.

**Comment:** Low flying aircraft are a concern. **Response:** Low level aircraft flights affect most of the WSA in Oregon. Refer to the Statewide EIS (Volume I), Chapter 5 under Issues Not Analyzed.

**Comment:** Littering and theft of slab rock would occur if the WSA roads are not closed. **Response:** Littering has been a minor problem at Coffeepot Crater and theft of slab rock has not occurred recently. The BLM has also increased surveillance in the area to help prevent and detect future problems. Closing the 5 miles of roads and 2.5 miles of ways in the WSA would slightly reduce vehicular access, resulting in less litter and slab rock theft.

### Table 1. Summary of Proposed Management Under Each Alternative, Jordan Craters WSA (OR-3-128)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>27,900</td>
<td>27,900</td>
<td>23,225</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>27,900</td>
<td>27,900</td>
<td>23,225</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed²</td>
<td>2.5</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired³</td>
<td>0</td>
<td>120</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired⁴</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>27,875</td>
<td>27,875</td>
<td>23,200</td>
<td>0</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed: Pipeline (miles)</td>
<td>0.25</td>
<td>0</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated (AUMs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,164⁵</td>
</tr>
</tbody>
</table>

¹Except for 5 miles of roads and 3 miles of ways in the WSA, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
²Although 3 miles of ways are in the WSA, 0.5 miles are no longer used due to fencing and revegetation.
³Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.
⁴Upon acquisition of the mineral estate these lands would be withdrawn from mineral location and leasing.
⁵Of this 1,164 AUM increase, 96 AUMs are on portions of pastures within the WSA.
<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 27,900 acres would result in protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 28,020 acres would further protect and enhance wilderness values.</td>
<td>Wilderness designation of 23,265 acres would protect and enhance wilderness values. Wilderness values on the 4,675 acres designated nonsuitable would be temporarily impaired due to energy exploration, with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would impair wilderness values over approximately 1,500 acres, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to mineral development is expected.</td>
<td>No impact to mineral development is expected.</td>
<td>No impact to mineral development is expected.</td>
<td>No impact to mineral development is expected.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Overall, there would be no significant change in vegetation. A 2.5-mile way would revegetate.</td>
<td>There would be no significant change in vegetation. A 2.5-mile way and 5 miles of roads would revegetate.</td>
<td>No change would take place to vegetation.</td>
<td>Little change would take place to vegetation. Utilization of key forage species would increase and the reduced residual ground cover would result in a more grazed appearance.</td>
</tr>
<tr>
<td>Wilderness</td>
<td>Wildlife habitat and populations would be maintained on 27,900 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 28,020 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 23,265 acres designated wilderness.</td>
<td>Nesting and escape cover for wildlife would be slightly reduced.</td>
</tr>
<tr>
<td>Watershed</td>
<td>No change from current watershed condition is expected under this alternative.</td>
<td>Watershed would remain in good condition in the vicinity of Batch Lake and would improve on the north and west shorelines of Crater Lake.</td>
<td>Watershed would remain in good condition in the vicinity of Batch Lake and continue to decline on the north and west shores of Crater Lake.</td>
<td>Watershed would remain in good condition in the vicinity of Batch Lake and continue to decline on the north and west shores of Crater Lake.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>A potential increased allocation of 1,164 AUMs through allocation of currently available forage would be forgone. A 0.25-mile pipeline would be constructed to improve livestock distribution in the Clarks Butte WSA (OR-3-120).</td>
<td>A potential increase of 1,164 AUMs through allocation of currently available forage would be forgone. A 0.25-mile pipeline would be constructed to improve livestock distribution in the Clarks Butte WSA (OR-3-120).</td>
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<td>An increase of 1,164 AUMs of currently available but unallocated forage would be allocated. A 0.25-mile pipeline would be constructed to improve livestock distribution in the Clarks Butte WSA (OR-3-120).</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected. There would be a slight shift to primitive, non-motorized types of recreation use.</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected. There would be a slight shift to primitive, non-motorized types of recreation use.</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected.</td>
<td>The area's recreation use level of 800 visitor days per year would not be affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $30,000.</td>
<td>Annual local personal income would remain at approximately $30,000.</td>
<td>Annual local personal income would remain at approximately $30,000.</td>
<td>Annual local personal income would increase by approximately $14,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Jordan Craters WSA (OR-3-128)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold and silver</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Jordan Craters WSA (OR-3-128)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent of Allocation in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCain Springs (0505)</td>
<td>1,948</td>
<td>04/01-10/15</td>
<td>8</td>
<td>135</td>
</tr>
<tr>
<td>Lodge (0901)</td>
<td>3,150</td>
<td>04/01-10/31</td>
<td>39</td>
<td>1,035</td>
</tr>
<tr>
<td>West Cow Creek (0902)</td>
<td>11,494</td>
<td>04/01-10/31</td>
<td>2</td>
<td>332</td>
</tr>
<tr>
<td>Oliver (0905)</td>
<td>560</td>
<td>04/01-10/31</td>
<td>15</td>
<td>76</td>
</tr>
<tr>
<td>Schnable Creek (0510)</td>
<td>1,416</td>
<td>04/01-08/15</td>
<td>12</td>
<td>115</td>
</tr>
<tr>
<td>Total</td>
<td>18,568</td>
<td></td>
<td>471</td>
<td>1,693</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Jordan Craters WSA (OR-3-128) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Partial Wilderness (Proposed Action)</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>+1,164</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+13,968</td>
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<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+13,968</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private
- BLM Surface-State or Private Subsurface (Split Estate)
- Edge of Lava

U.S. Department of the Interior
Bureau of Land Management
Vale District

Jordan Craters WSA
OR-3-128

LAND OWNERSHIP

MAP 2
Wilderness Study Area Boundary

adjacent Wilderness Study Areas

Recommended Suitable for Wilderness

Non-Federal Land within Recommended Wilderness

Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness

Recommended Road Closure

U.S. Department of the Interior
Bureau of Land Management
Vale District

Jordan Craters WSA
OR-3-128

ENHANCED ALTERNATIVE

MAP 4
Wilderness Study Area Boundary

Boundary of Adjacent Wilderness Study Areas

Recommended Suitable for Wilderness

Recommended Nonsuitable for Wilderness

U.S. Department of the Interior
Bureau of Land Management
Vale District

Jordan Craters WSA
OR-3-128

PARTIAL ALTERNATIVE
**Waterfowl and Shorebirds**

U.S. Department of the Interior
Bureau of Land Management
Vale District

Jordan Craters WSA
OR-3-128

**SPECIAL FEATURES**
Jordan Craters WSA, OR-3-128. North-central portion of the WSA looking east toward Coffeepot Crater across two collapsed lava tubes. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. September 1983.

Jordan Craters WSA, OR-3-128. Central portion of the WSA looking west across the kipuka toward the lightly-grazed ridge on the background. Within area recommended suitable under the partial (proposed action) alternative and enhanced alternative. September 1983.
Jordan Craters WSA, OR-3-128. Southeastern portion of the WSA looking west across the Batch Lake area toward Biscuit Butte (outside the WSA). Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. September 1983.

Jordan Craters WSA, OR-3-128. North-central portion of the WSA looking west into Coffeepot Crater. Within area recommended suitable under the enhanced alternative and partial (proposed action) alternative. A dead-end access road is visible on the slope in the background. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Trout Creek Combination Wilderness Study Area (OR-3-152, 153, 156, 157, 162)

1. Introduction

General Description of the Study Area

The Willow Creek, Disaster Peak, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek Wilderness Study Areas (referred to collectively in this appendix as the Trout Creek Mountains group) are located in the Trout Creek Mountains in eastern Oregon and northern Nevada. Portions of both the Harney/Malheur County line (Oregon) and the Oregon/Nevada State line are within the WSA group.

The five WSAs are between 8 and 28 miles northwest of McDermit, Nevada and U.S. Highway 95 (see Map 1).

Together, the five WSAs include 185,395 acres of public land (see Map 2). There are 10,195 acres of split-estate lands within the WSAs. They consist of 24 parcels evenly dispersed in a checkerboard pattern across the group of WSAs.

Also within the WSAs or between the boundaries of adjacent WSAs are 3,920 acres of private land in 31 parcels of various sizes (see Map 2). All but five are 40-acre parcels. The five irregular parcels are 1,240 acres, 1,120 acres, 280 acres, 160 acres and 80 acres. The majority of the private property is concentrated in the west side of the group of WSAs (including the two largest parcels) and the remainder are mainly in the upper northeast portion of the group.

The WSAs are bordered on the north by grass seedings (bounded by fences) on public land, with four exceptions: a BLM high-standard dirt road at the extreme northern end, rimrock along Whitehorse Creek Canyon, private property at the Sweeney Ranch and private property along Willow Creek. The western boundary is basically a seeding edge in the north, and BLM high-standard dirt roads and a large parcel of private property at Sherman Field in the south. With the exception of one small parcel of private property, the southern boundary is basically formed by BLM high-standard dirt roads along the west half and by natural features on the east half. The eastern boundary is a series of seeding fences, high-standard dirt roads, private lands, a powerline and water development projects.

Four BLM high-standard dirt roads separate the WSAs. The northern-most road, approximately 5 miles long, crosses the northward extension of the WSAs from east to west, roughly paralleling Antelope Creek. Another road, approximately 7 miles long, crosses the southwestern extension of the WSAs from north to south, roughly paralleling Little Whitehorse Creek. The third road, approximately 25 miles long, crosses the southeastern portion of the group of WSAs from the west to the east, turns north, roughly paralleling Oregon Canyon, and then joins the northern-most road mentioned above. The fourth road, approximately 5 miles long, crosses the southwestern portion of the WSA, roughly parallel to McDermit Creek.

Eleven dead-end, high-standard dirt roads penetrate different WSAs, forming part of their boundaries. The first, approximately 2 miles long, provides access to a split-estate parcel and Doolittle Cow Camp at the head of Doolittle Creek. The second penetrates 3 miles to the east along the ridge between the southern escarpment and the head of Oregon Canyon and ends at an overlook above the southeastern corner of the Trout Creek range. The third is 1 mile long and provides access to the ridgeline east of Twelvemile Creek. Eight other dead-end roads penetrate the southwestern extension of the WSAs. (These are described in detail below in the section on the Disaster Peak WSA.)

The land adjacent to the boundaries of the Trout Creek Mountains group is public land, except for the private lands previously mentioned. Lands to the
east, north and west of the WSAs are predominantly used for livestock grazing and to the south, for grazing and mining.

The five WSAs are in the Trout Creek Mountains, an uplifted and tilted geologic block with a steep escarpment along the southern and eastern extent of the range. Within the portion of the WSAs south of the range, below the escarpment, lies a collapsed volcanic dome called the McDermitt Caldera. The Quinn River Valley lies to the east and the Pueblo Valley lies to the west of the range. The Trout Creek range fills down to the north and precipitation drains into the playa of the Coyote Lake Basin. The drainage pattern that has developed on this tilted topography is characterized by numerous semi-parallel canyons tending from the south to the northwest.

The escarpment through the WSAs is the divide between the land-locked Coyote Lake Basin in Oregon and the Humboldt Basin in Nevada. The elevation of the escarpment ranges from approximately 6,500 to 8,500 feet. The relatively high elevations cause enough year-round precipitation to support perennial streams and springs. The perennial water sources support groves of mountain mahogany, aspen and willow, as well as abundant shrub species in the headwaters and canyon bottoms throughout the range.

The Willow Creek WSA contains 30,565 acres of public land, along with 2,040 acres of private land, and includes 1,755 acres of split-estate land. It is approximately 12 miles long, north to south, and varies from 1.5 to 6 miles wide. The private land is in the western half of the WSA and the split-estate is scattered throughout the WSA. The WSA is bordered by private land, seedings and BLM roads.

The WSA’s diverse terrain varies from gentle relief in the north and south to deep, wide canyons of sheer basalt rims and talus slopes in the central region.

The Disaster Peak WSA contains 32,040 acres of public land (18,840 acres in Oregon and 13,200 acres in Nevada). It has a very irregular horseshoe shape, approximately 10 miles long and 8 miles wide. Within the WSA is a 40-acre private parcel. In addition, 1,550 acres of split estate are located in the north half of the WSA.

Eight dead-end roads penetrate the WSA; the longest is approximately 3 miles in length and provides access from the western boundary to a split-estate parcel. Another extends approximately 2 miles west from Sherman Field to a split-estate parcel. The remainder are all less than 1 mile in length. One enters the WSA from the south and leads to old mining prospects. Another enters from the north, terminating at Turner Reservoir in the northeast corner of the WSA. The remaining four enter from the east, and end at a reservoir, a fence, a canyon bottom and a weather recording station, respectively. The WSA boundary follows BLM roads and private land boundaries.

The WSA sits along the northwest rim of the McDermitt Caldera, forming part of the divide that separates the Coyote Lake Basin from the Humboldt Basin. The landmark known as Disaster Peak is a large, symmetrical butte that is visible throughout the region. The western-most portion of the WSA incorporates part of an area known as The Granites, named after the abundance of very old granitic outcrops that appears at the base of the predominantly volcanic ridgeline.

The Fifteenmile Creek WSA contains 51,290 acres of public land. The area is shaped like an arrowhead pointing north, and is approximately 14 miles long and 9 miles wide. A narrow protrusion extends 1 mile from the western boundary of the WSA to include some of the canyon and rims of Whitehorse Creek. Within the WSA are 2,750 acres of split-estate lands. In addition, three 40-acre private inholdings are scattered throughout the eastern portion of the WSA. The boundary of the WSA follows a fenced seeding, BLM roads and private land. A dead-end road, forming part of the boundary, extends 2 miles into the WSA from the southern boundary road, through the split-estate section near that boundary. It provides access to Doolittle Cow Camp on public land.

Topography of the WSA consists of long, deep, steep-walled canyons (mostly tributaries of Whitehorse Creek) separated by broad, smoothly-rounded ridges. The canyon slopes are broken by rimrock, outcrops and scree slopes, while the ridge tops are flat or gently rolling.

The Oregon Canyon WSA contains 42,900 acres of public land, and is approximately 13 miles long and 9 miles wide, except for an additional 5-mile-long and 2-mile-wide western protrusion along the southern end of the WSA. There are 2,500 acres of split-estate lands in the WSA. It is bordered by public lands and, for less than 2 miles, private land. The north, west and east boundaries generally follow fences and roads, while the south boundary follows natural features, such as rimrock ledges and drainage bottoms. A dead-end road from the western boundary road extends about 3 miles into the center of the WSA to provide access to the heads of several canyons and viewpoints along the escarpment.
Topography of the WSA consists of a few long ridgelines, the deep Oregon Canyon and its two steep-walled forks, and many relatively short and precipitous canyons which drain the eastern and southern slopes. The ridge tops are broken by rock outcrops, rimrock and scree slopes.

The Twelvemile Creek WSA contains 28,600 acres of public land in a heart-shaped configuration. The WSA has 1,640 acres of split-estate and six parcels of private inholdings totaling 360 acres (all but one are 40-acre tracts). A BLM road, a fenced crested wheatgrass seeding, and private lands border the study area. Also, the area’s eastern boundary is bordered by a powerline and a large brush-control project. A dead-end road extends 1 mile into the southeastern corner of the study area from the southern boundary road to provide access to the ridgeline east of Twelvemile Creek.

The WSA consists of two fault block plateaus, steeply scarped on the east and sloping gently toward the northwest. Four major canyons originate near the southeastern edge of the study area and cut deeply as they radiate to the north and northwest in a fanlike array. They are steep-sided, edged with rimrock and intersected by many tributary drainages. The ridge tops are broad and flat to gently rolling.

**Interrelationships**

To the west of the Willow Creek and Disaster Peak WSAs lies Mahogany Ridge WSA(OR-2-77). A road separates it from the other WSAs. Part of the Disaster Peak WSA overlaps into both BLM’s Winnemucca District in Nevada (where the WSA is referred to as NV-020-859), and BLM’s Burns District in Oregon. The portion in Nevada contains 13,200 acres.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Whitehorse Wildlife Unit which contains 4,882-square-miles of land area and supports several big game species. The WSA supports a summer mule deer herd of approximately 1,200 to 1,400 animals. ODFW manages the Trout Creek Mountain complex to provide a trophy deer hunt by allowing limited numbers of hunters. A herd of 27 California bighorn sheep were reintroduced into the Oregon Canyon Mountains in 1987. The area is currently being managed to maximize herd growth, thus no harvest is allowed. California bighorn sheep are currently listed as a candidate species for Federal listing under the Endangered Species Act. A small population of less than 100 pronghorn antelope range throughout the area. Pronghorns are managed to produce 20 bucks per 100 does.

Lahontan and Willow/Whitehorse cutthroat trout are present within the WSA complex. The Lahontan cutthroat is Federally-listed as a threatened species in Nevada and the Willow/Whitehorse cutthroat is a candidate for Federal listing under the Endangered Species Act. The ODFW management goal for the Willow/Whitehorse cutthroat is to maintain genetic purity and at least maintain its current distribution within the State. The Nevada goal for the Lahontan cutthroat is to maintain its genetic purity, and eventually remove it from the Federal list by expanding populations and improving habitat.

The proposed action for this WSA conforms with ODFW management goals for game and nongame species. Malheur and Harney Counties in Oregon, and Humboldt County in Nevada have not identified any conflicts between the proposed action and county plans.

Riparian habitat within this WSA complex is highly important to aquatic and terrestrial wildlife species. Due to generally poor riparian conditions, the BLM designated 1,290 acres of the Whitehorse Basin as an Area of Critical Environmental Concern (ACEC) in 1983. This designation brought special management attention to the only known habitat for the Willow/Whitehorse cutthroat trout, a candidate for Federal listing that is specifically adapted to the harsh desert environment. Special management to protect the fragile habitat and to preserve the gene pool for restocking includes:

- restricting or excluding livestock grazing where necessary, until riparian vegetation is established and naturally maintains itself,
- removing fish barriers,
- stocking fish in suitable habitat,
- constructing pool habitat,
- augmenting stream flow by constructing water retention structures and by protecting riparian vegetation from livestock and off-road vehicle (ORV) use,
- attempting to acquire private land critical to habitat management, and
- manipulating cover and shade to maintain existing habitat.

This special management for the ACEC would continue to apply in the portions within the WSA whether or not the area was designated wilderness.
Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on potential energy and mineral development,
- impact on the private inholdings. (The effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on livestock use levels and management,
- impact on bighorn sheep, mule deer, antelope, sage grouse and special trout species populations and habitat,
- impact on use of interior dead-end roads, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by the BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness
- proposed action
- no wilderness/no action.

The Whitehorse Basin ACEC is in the portions recommended as suitable for wilderness under the all wilderness, enhanced wilderness and proposed wilderness alternatives for the Willow Creek, Fifteen-mile Creek and Twelvemile Creek WSAs.

An enhanced wilderness alternative combining the Mahogany Ridge WSA (OR-2-77) with the five WSAs described in this appendix is not analyzed because it would not be feasible to close the road which divides Mahogany Ridge from the adjacent two WSAs. This road is necessary for both public use (access to private land, for livestock management and hunting, etc.) and BLM use.

Separate enhanced wilderness alternatives for each WSA, in which roads between WSAs would remain open, are not analyzed because the effects of such alternatives would not be substantially different from those analyzed in the all wilderness alternative.

A partial alternative is not analyzed because there is no plausible way of resolving all conflicts between wilderness and other resource uses by recommending the areas with conflicts as nonsuitable for wilderness. Some manageability and resource conflicts are resolved in the proposed alternative. Resolving other conflicts by recommending portions as nonsuitable would not leave viable wilderness areas.

All Wilderness

Under the all wilderness alternative, each of the five WSAs would be recommended suitable as wilderness and managed as separate wilderness areas (see Map 2): 30,565 acres in the Willow Creek WSA; 32,040 acres in the Disaster Peak WSA (including 13,200 acres in Nevada); 51,290 acres in the Fifteenmile Creek WSA; 42,900 acres in the Oregon Canyon WSA and 28,600 acres in the Twelvemile Creek WSA. The total area included in these five WSAs is 185,395 acres. The roads between the WSAs and dead-end roads would remain open. For purposes of analysis, it is assumed that none of the private inholdings or mineral estate would be acquired.
Energy and Mineral Development Actions

Wilderness designation would close 175,200 acres of public land in the Trout Creek Mountains group of WSAs to mineral entry. A total of 10,195 acres of split-estate lands would be open to mineral exploration and development. In addition, 3,960 acres of private land in or adjacent to the group would be open to mineral exploration and development at the landowners' discretion. The acres open to exploration and development and closed to mineral entry in each of the WSAs are listed in Table 4.

As of October 16, 1987, there were 64 mining claims (62 lode and two placer) located totally or partially within the Trout Creek Mountains group of WSAs. They are located in the southeastern portion of the Oregon Canyon WSA (29 claims) and in the eastern and southern portions of the Disaster Peak WSA (35 claims). As they contain no confirmed developable locatable energy (i.e., uranium/thorium) and/or mineral resources, only casual non-surface-disturbing exploration (with no development) is projected.

Exploration for geothermal resources, would be prohibited on 175,200 acres. Due to a lack of direct evidence indicating favorability and an absence of confirmed geothermal resource-bearing formations, only casual non-surface-disturbing exploration (with no development) is projected for geothermal resources on the 10,195 acres of split-estate and 3,960 acres of private land in the Trout Creek Mountains group.

Exploration for uranium/thorium, which has a moderate potential for occurrence in portions of the Trout Creek Mountains group, would be prohibited on 175,200 acres. Exploration is projected to occur on 1,280 acres of split-estate and 400 acres of private land in portions of the Trout Creek Mountains group. This effort would most likely consist of ground radiometric surveys, geologic mapping, surface sampling and core drilling. These tests may involve up to six core holes and may disturb four acres, including 2.7 miles of new access road construction. The discovery of an economically-mineable uranium/thorium deposit is not expected and no development of these non-Federal minerals is projected.

Exploration for mineral resources (including gold, silver, mercury, beryllium, lithium bentonite and zeolite) would be prohibited on 175,200 acres.

Exploration for gold/silver/mercury is projected to occur on 3,855 acres of split-estate land and 2,440 acres of private land in the Trout Creek Mountains group. This effort would most likely consist of surface examination and sampling, followed by core drilling/bulk sample trenching. These tests may involve up to 12 core holes and one bulk sample trench and may disturb 10 acres, including 7.4 miles of access road construction. The discovery of economically mineable gold/silver/mercury deposits is not expected and no development is projected.

Exploration for beryllium is projected to occur on 720 acres of split-estate and 1,030 acres of private land in the northern portion of the Disaster Peak WSA. This effort would most likely consist of surface examination and sampling, followed by the drilling of three core holes. The resulting surface disturbance is estimated to be four acres, including 2.5 miles of access road construction. The discovery of an economically-mineable deposit is not expected and no development is projected.

Exploration for lithium bentonite and zeolites is expected to occur on a 200-acre split-estate parcel in the eastern portion of the Disaster Peak WSA. This effort would most likely consist of surface examination and sampling, followed by the digging of two bulk sample trenches. The resulting surface disturbance is estimated to be 0.5 acres, including 0.2 miles of access road construction. The discovery of an economically-mineable lithium bentonite and/or zeolite deposit is not expected and no development is projected. Total surface disturbance resulting from energy and mineral exploration would be 17.5 acres, including 12.8 miles of access road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure adequate forage and cover for wildlife. The construction of 50 pools is proposed to restore habitat for special native fish species present in the Willow Creek, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek WSAs. These pools would only be constructed after there has been an improvement in stream bank stability and streamside vegetation. Premature construction of pools might otherwise lead to further stream degradation due to lateral erosion around the pool development structures.
Livestock Management Actions

Livestock use would remain at the current use level of approximately 20,073 AUMs within the portions of seven allotments in the five WSA’s. The seasons of use would remain as identified in Table 7 for the seven allotments. Vehicle use for livestock management on 115 miles of ways would be precluded. Twenty miles of fence would be constructed in the WSA’s: 4 miles in Willow Creek; 2 miles in Disaster Peak; 7 miles in Fifteenmile Creek; 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek to allow a change in livestock management and restore riparian vegetation on 80 miles of streams. Management of livestock and maintenance of 80 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain 22 reservoirs and 18 springs. This infrequent use would involve 40 miles of ways, 40 miles of roads and 14 miles of cross-country travel.

Recreation Management Actions

The entire 185,395 acres, including 115 miles of ways, would be closed to motorized vehicle use. Presently, vehicle use in the portion of the WSA’s located in Oregon, is limited by vehicle designation to the 50 miles of existing roads and 115 miles of existing ways. All 13,200 acres of the Disaster Peak WSA in Nevada are open to ORVs. Current recreational use is estimated to be approximately 6,000 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing roads and ways.

Enhanced Wilderness

Under the enhanced wilderness alternative, the Willow Creek, Disaster Peak, Oregon Canyon, Twelvemile Creek and Fifteenmile Creek WSA’s would all be combined and recommended suitable for designation as a single wilderness area: 32,605 acres in the Willow Creek WSA; 33,320 acres in the Disaster Peak WSA; 51,490 acres in the Fifteenmile Creek WSA; 42,940 acres in the Oregon Canyon WSA; and 29,000 acres in the Twelvemile Creek WSA. A total of 185,395 acres of public land in the WSA’s (including 13,200 acres in Nevada) would be recommended suitable as wilderness. In addition, 1,230 acres of public land outside the WSA’s would be added to the area recommended suitable as wilderness: 250 acres in the western portion of the Disaster Peak WSA, and 980 acres along the eastern boundary between the Twelvemile Creek and Fifteenmile Creek WSA’s. The 3,960 acres of private inholdings and the mineral estate of the 10,295 acres of split-estate land (all in Oregon) would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of these parcels, the total area recommended suitable under this alternative would be 190,585 acres (see Map 3). Eleven dead-end roads and the boundary roads between the WSA’s, totaling 53 miles in length, and 115 miles of ways would be closed.

Energy and Mineral Development Actions

Wilderness designation would close 175,200 acres of public land within the Trout Creek Mountains group of WSA’s to mineral entry. In addition, 1,230 acres of non-WSA public land bordering the Trout Creek Mountains group would be included in wilderness designation and all but 100 acres of split-estate land would also be closed to mineral entry. If acquisition were successful, 10,295 acres of mineral estate on split-estate lands (10,195 acres within the Trout Creek Mountains group, and 100 acres in non-WSA land included in wilderness) and 3,960 acres of private land would also be closed to mineral entry for a total of 190,585 acres. The acres closed to mineral entry in each of the WSA’s are listed in Table 4.

As of October 16, 1987, there were 64 mining claims (62 lode and two placer) located totally or partially within the Trout Creek Mountains group of WSA’s. They are located in the southeastern portion of the Oregon Canyon WSA (29 claims) and in the eastern and southern portions of the Disaster Peak WSA (35 claims). As they contain no confirmed developable locatable energy (i.e., uranium/thorium) and/or mineral resources, only casual non-surface-disturbing exploration (with no development) is projected.

Exploration for leasable energy resources, including geothermal resources and uranium/thorium, would be prohibited on 190,585 acres.

Exploration for mineral resources (including gold, silver, mercury, beryllium, lithium bentonite and zeolites) would also be prohibited on 190,585 acres.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management
goals and in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure adequate forage and cover for wildlife. The construction of 50 pools is proposed to restore deteriorated habitat for special native fish species present in the Willow Creek, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek WSAs. These pools would only be constructed after there has been an improvement in stream bank stability and streamside vegetation. Premature construction of pools might otherwise lead to further stream degradation due to lateral erosion around the pool development structures.

Livestock Management Actions

Livestock grazing use would continue at the current level of 20,073 AUMs in the portions of seven allotments in the five WSAs. The season of use would remain as identified in Table 7 for the seven allotments. Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek; 2 miles in Disaster Peak; 7 miles in Fifteenmile Creek; 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to allow a change in livestock management to restore riparian vegetation on 80 miles of streams. Vehicle use for day-to-day livestock management on 115 miles of ways and 53 miles of road would be precluded. Management of livestock and maintenance of 80 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain 22 reservoirs and 18 springs. This periodic, infrequent work would involve 40 miles of ways, 40 miles of roads and 14 miles of cross-country travel.

Recreation Management Actions

The entire 190,585 acres would be closed to motorized vehicle use, assuming closure of the 11 dead-end roads and the roads between the WSAs, and acquisition of the private inholdings. Presently, vehicle use in the portion of the WSAs located in Oregon, is limited by vehicle designation to the 53 miles of existing roads and 115 miles of existing ways. All 13,200 acres of the Disaster Peak WSA in Nevada are open to ORVs. Current recreational use is estimated to be approximately 6,000 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing roads and ways.

Proposed Action

Under the proposed action, portions of the Willow Creek WSA (28,200 acres) and the Disaster Peak WSA (30,920 acres) would be combined; and a portion of the Twelvemile Creek WSA (25,660 acres) and all of the Oregon Canyon WSA (42,940 acres) and the Fifteenmile WSA (51,490 acres) would be combined. The combinations would form a single wilderness area separated by a road. The 3,960 acres of private inholdings and the mineral estate of the 9,465 acres of split-estate land (all in Oregon) would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of these parcels, a total of 180,440 acres of public land in the WSAs (including 13,200 acres in Nevada) would be recommended suitable as wilderness (see Map 4). This total includes 1,230 acres of public land outside of the current WSAs: 250 acres in the western portion of the Disaster Peak WSA and 980 acres along the eastern boundary between the Twelvemile Creek and Fifteenmile Creek WSAs.

Ten dead-end roads with a total length of 10.5 miles, four boundary roads (one each along the northwest boundary of the Disaster Peak WSA, between the Willow Creek and Disaster Peak WSAs, between the Twelvemile Creek and Fifteenmile Creek WSAs and the north-south portion between the Fifteenmile Creek and Oregon Canyon WSAs) with a total length of 24 miles and 109 miles of ways would be closed. The 7-mile road between the two combined wilderness areas would remain open. Also, the dead-end road to Doolittle Cow Camp and the east-west portion of the boundary road between the Fifteenmile Creek and Oregon Canyon WSAs would remain open (see Map 4).

Under this alternative, a total of 10,145 acres would be recommended nonsuitable for wilderness: 4,405 acres in the northern portion of the Willow Creek WSA, 2,400 acres in the eastern and southern portions of the Disaster Peak WSA and 3,340 acres in the eastern and western portions of the Twelvemile Creek WSA.

Energy and Mineral Development Actions

Wilderness designation would close 165,785 acres of public land within the Trout Creek Mountains group of WSAs to mineral entry. In addition 1,230 acres of non-WSA public land bordering the group would be designated wilderness and all but 100 acres of split-estate land would be closed to mineral entry. If
acquisitions were successful, the mineral estate on 9,465 acres of split-estate land and 3,960 acres of private land would be closed to mineral entry.

A total of 10,145 acres of public land recommended as nonsuitable for wilderness would be open to mineral exploration and development. The acres closed to mineral entry in each of the WSAs are listed in Table 6.

Thirty-five mining claims are situated within the suitable portions of the Trout Creek Mountains group - 29 claims in the southeastern portion of the Oregon Canyon WSA and six claims in the eastern and southern portions of the Disaster Peak WSA. As they contain no confirmed developable locatable energy (i.e., uranium/thorium) and/or mineral resources, only casual non-surface-disturbing exploration (without development) is projected.

Exploration for geothermal resources, would be prohibited on 180,440 acres. Due to a lack of direct evidence indicating favorability, an absence of confirmed geothermal resource-bearing formations, and an absence of existing geothermal leases, only casual non-surface-disturbing exploration with no development is projected for geothermal resources on the 10,145 acres in the nonsuitable portions of the Trout Creek Mountains group.

Exploration for uranium/thorium would be prohibited on 180,440 acres in the suitable portion of the group. Exploration is projected to occur on 2,400 acres with moderate potential for occurrence in the nonsuitable portions of the Disaster Peak WSA. The effort would most likely consist of airborne and ground radiometric surveys, geologic mapping, surface sampling and core drilling. These tests may involve up to six core holes and may disturb 1 acre, including 0.5 miles of access road construction. The discovery of an economically-mineable uranium/thorium deposit is not expected and no development is projected.

Exploration for mineral resources (including gold, silver, mercury, beryllium, lithium bentonite and zeolites) would be prohibited on 180,440 acres.

Gold/silver exploration is projected to occur on 5,740 acres in the nonsuitable portions of the Disaster Peak and Twelvemile Creek WSAs. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to 38 core holes and may disturb 9 acres, including 4.1 miles of access road construction. The discovery of an economically-mineable deposit is postulated and it would be developed. The operation would involve approximately 800 acres of surface disturbance for one open-pit gold mine and milling/leaching complex, and 3 miles of upgraded road construction.

Mercury exploration is projected to occur on 12,405 acres in the nonsuitable portions of the Disaster Peak and Willow Creek WSAs. This effort would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to eight core holes and may disturb 4 acres, including 2.8 miles of access road construction. The discovery of an economically mineable deposit is not expected and no development is projected.

Exploration for beryllium, lithium bentonite and zeolites is projected to occur on 1,500 acres in the nonsuitable portion of the Disaster Peak WSA. This effort would most likely consist of surface examination and sampling, followed by core drilling and bulk sample trenches. These tests may involve up to five core holes and seven trenches and may disturb 7 acres, including approximately 3 miles of access road construction. The discovery of economically mineable deposits of beryllium, lithium bentonite, and/or zeolites is not expected and no development is projected.

Total surface disturbance resulting from energy and mineral exploration/development is projected to be approximately 820 acres, including 13.5 miles of new/ upgraded road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and, in the suitable area, in a manner consistent with BLM wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure adequate forage and cover for wildlife. The construction of 50 pools is proposed to restore deteriorated habitat for special native fish species present in the Willow Creek, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek WSAs. These pools will only be constructed after there has been an improvement in stream bank stability and streamside vegetation. Premature construction of pools might otherwise lead to further stream degradation due to lateral erosion around the pool development structures.
Livestock Management Actions

Livestock grazing use would continue at the current level of 20,073 AUMs in portions of seven allotments in the five WSAs. The season of use would remain as identified in Table 7 for the seven allotments. Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek; 2 miles in Disaster Peak; 7 miles in Fifteenmile Creek; 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to allow a change of livestock management to restore riparian vegetation on 80 miles of streams. Vehicle use for day-to-day livestock management on 109 miles of ways and 34.5 miles of road would be precluded. Management of livestock and maintenance of 80 miles of fences would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain 22 reservoirs and 18 springs. This periodic, infrequent work would involve 40 miles of ways, 40 miles of roads and 14 miles of cross-country travel.

Recreation Management Actions

The 180,440 acres recommended as suitable for wilderness would be closed to motorized vehicle use, including 109 miles of ways, 10 dead-end roads and four internal boundary roads totaling 34.5 miles in length, and the private inholdings would be acquired. Presently, vehicle use in the portion of the WSAs located in Oregon is limited by vehicle designation to the 53 miles of existing roads and 115 miles of existing ways. All 13,200 acres of the Disaster Peak WSA in Nevada are open to ORVs. Current recreational use is estimated to be approximately 6,000 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing roads and ways.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire area of all five WSAs nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All of the 185,395 acres within the Trout Creek Mountains group of WSAs would be open to mineral exploration and development. Exploration for uranium/thorium, which has a moderate potential for occurrence in portions of the Trout Creek Mountains group, based on direct evidence, is expected to occur. This effort would most likely consist of airborne and ground radiometric surveys, geologic mapping, surface sampling, and core drilling. These tests may involve up to 32 core holes and may disturb 13 acres, including 9.5 miles of access road construction. The discovery of an economically mineable deposit is not expected and no development is projected.

Due to a lack of direct evidence indicating favorability, an absence of confirmed geothermal resource bearing formations and an absence of existing geothermal leases, only casual non-surface-disturbing exploration (with no development) is projected for geothermal resources, which have a moderate potential for occurrence based on indirect evidence.

Exploration for mineral resources is postulated to occur throughout the Trout Creek Mountains group and would involve the following commodities: gold, which has a high potential for occurrence in portions of the Disaster Peak WSA based on direct evidence, and a moderate potential for occurrence in other portions of the Trout Creek Mountains group also based on direct evidence; silver and mercury, which have moderate potential for occurrence in portions of the Trout Creek Mountains group based on direct evidence; and beryllium, lithium bentonite and zeolites, which have moderate potential for occurrence in portions of the Trout Creek Mountains group based on direct evidence.

Gold/silver/mercury exploration efforts would most likely consist of surface examination and sampling, followed by core drilling/bulk sample trenching. These tests may involve up to 288 exploratory core holes and two exploratory trenches and may disturb approximately 160 acres, including 76.7 miles of new access road construction. The discovery of nine economically-mineable deposits are projected and they would be developed. The operations would involve approximately 2,650 acres of surface disturbance for six open-pit and three underground mines and their milling/leaching complexes, and 24 miles of upgraded road construction.

Beryllium exploration efforts would most likely consist of surface examination and sampling, followed by core drilling. These tests may involve up to 15 exploratory core holes and may disturb 11 acres, including 6 miles of access road construction. The discovery of an economic deposit is not expected and no development is projected.
Lithium bentonite and zeolite exploration efforts would most likely consist of surface examination and sampling, followed by trenching. These tests may involve up to 35 trenches and may disturb 18 acres, including 8 miles of access road construction. The discovery of economically mineable lithium bentonite and zeolite deposits are projected and they would be developed. The operations would involve approximately 35 acres of surface disturbance for two open-pit mines and stockpiling/processing plants, including 2.5 miles of upgraded road construction.

Total surface disturbance resulting from energy and mineral exploration/development would be approximately 2,900 acres, including 124 miles of new/ upgraded road construction.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans, and land use plan updates which ensure adequate forage and cover for wildlife. The construction of 50 pools is proposed to restore deteriorated habitat for special native fish species present in the Willow Creek, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek WSAs. These pools would only be constructed after there has been an improvement in stream bank stability and streamside vegetation. Premature construction of pools might otherwise lead to further stream degradation due to lateral erosion around the pool development structures.

Livestock Management Actions

Livestock grazing use would be reduced by 223 AUMs from the current use level of 20,073 AUMs to 19,850 AUMs in portions of seven allotments in the five WSAs due to mining development activities. The season of use would remain as identified in Table 7 for the seven allotments. A reservoir would be built in the Fifteenmile Creek WSA and two springs would be developed, one in the Twelvemile Creek WSA and one in the Willow Creek WSA, to improve livestock distribution.

Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek; 2 miles in Disaster Peak; 7 miles in Fifteenmile Creek; 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to allow a change of livestock management to restore riparian vegetation on 80 miles of streams.

Vehicle use for livestock management and maintenance of the 80 miles of fence, 23 reservoirs and 20 springs would continue on 115 miles of ways and 53 miles of roads. The ways would be used 45 to 55 times per year to check livestock, spread salt, maintain facilities and to supply and operate a cow camp. The cow camp is located on private land within the Willow Creek WSA. The roads are used 90 to 100 times per year for the same purposes as well as to supply and operate Doolittle Cow Camp within the Fifteenmile Creek WSA.

Recreation Management Actions

Motorized vehicle use on the portion of the WSAs located in Oregon would continue to be restricted to the existing 53 miles of roads and 115 miles of ways through a "limited" use designation. Motorized vehicle use on the 13,200 acres of the Disaster Peak WSA in Nevada would remain open to ORVs. Current recreational use is estimated to be approximately 6,000 visitor days per year. Most of this use utilizes vehicles for access into the area via the existing roads and ways.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSAs are generally natural. Topography screens unnatural features throughout the WSAs because nearly all of the developments are in draws or in basins. Features that affect the WSAs' naturalness include 32 fences totaling 60 miles, 22 reservoirs and 18 springs, six exclosures and corrals, one
snow measurement station, one cabin, one building, one dump and one abandoned irrigation ditch. Table 8 lists the unnatural features in each WSA and percent of the total area influenced by each feature.

At low elevations, the terrain is more rolling and less steep than at high elevations, thus developments at low elevations influence a larger area than the same type of developments at high elevations. As a consequence, visitors are likely to see more than one development at a time at low elevations. For example, in the northwest extension of the WSAs between Little Whitehorse Creek and Willow Creek most of the area is natural, but the low relief coupled with multiple unnatural features detracts from the naturalness of the area. In contrast, there is a similar concentration of developments in the southwest portion of the WSAs, but they do not intrude on naturalness to the same degree because they are less visible in the high relief terrain. During a typical traverse of the area, many developments are not visible.

An exception to this rule occurs near the south-central boundary where there is a cow camp at the head of Doolittle Creek Canyon. The basin is wide and shallow there, thus the buildings, corrals, access roads and garbage dump are all easily visible for at least 0.5 mile in every direction.

North of the WSAs lie ridges with wheatgrass seedings where roads, stock water developments and distant ranches are occasionally visible. However, these developments cannot be seen from much of the area within the WSAs because the terrain often blocks the view.

Developments in the Quinn River Basin to the east of the WSAs consist of numerous agricultural fields, ranches, powerlines, pastures, fences, roads and the community of McDermitt. Some of these features lie as close to the WSAs as the foot of the escarpment and from the escarpment slope they are nearly always visible. The steepness of the escarpment blocks the view of the mountain range to the west. As a result of the clear view to the east and the obscured view to the west, a visitor's perception of the escarpment's naturalness is diminished.

The same condition occurs along the southern escarpment where the influences are largely related to mining instead of ranching. The west half of the southern escarpment is slightly influenced by distant ranching developments and activities but, as in the case of the northern boundary, the influences are too few and distant to have a substantial effect.

A total of 145 unnatural features in the five WSAs influence approximately 14 percent of the combined area. A discussion of the naturalness of each WSA follows.

Willow Creek WSA - The WSA is generally natural. The rugged terrain throughout much of the WSA has limited developments and most unnatural features are concentrated in the northern and southern portions of the WSA. Of the 21 interior developments, one way and one fence affect the central portion of the WSA. The majority of the influenced area is in the northern extension of the WSA. Here the developments are numerous and close, and their influences are stronger due to the minimal screening.

Disaster Peak WSA - The WSA is generally natural. The majority of the 31 interior developments are located in the northern and north-central portions of the WSA. Three fences and one snow-measuring station are located in the southern region of the WSA. The developments in the north half are hidden from each other by topographic features, although they are relatively close. Intrusions from vehicle travel on boundary roads and dead-end access roads, and ranching activities to the southeast are generally brief and distant, and their influence does not penetrate far into the WSA.

Fifteenmile Creek WSA - This WSA appears natural as most of the area is devoid of signs of human activity. Many of the 53 interior developments are not obtrusive because they are small and are effectively screened by the topography and vegetation. Table 8 does not include numerous debris-catcher dams constructed in some creek bottoms out of woven wire and metal fence posts. They are generally unnoticeable. Nearby developments, including seedings, ranch buildings, fences, water troughs, a way and a reservoir have a minor influence due to topographic and vegetative screening.

Oregon Canyon WSA - This WSA is in a highly natural condition. Large portions of the interior have no developments. The few that exist are concentrated in the south-central portion of the WSA. Most of the developments are hidden in draws along the south and eastern escarpments, or, in the case of fencelines, along the top of the southern escarpment. Nearby features that influence the WSA include ranches, mines, transportation and power transmission routes, and the community of McDermitt. These developments are concentrated along the eastern and southern boundaries and are highly visible from the study area's east and south slopes that constitute over half of the WSA. The influence of these developments diminishes the visitor's perception of the WSA's naturalness.
Twelvemile Creek WSA - This WSA has few unnatural features and most of it is therefore in a natural condition. The existing developments are spread across the WSA, along ridgelines (in the case of fences and ways) and in some small tributary headwater basins above the main drainages, where they are screened by the topography. Outside sights and sounds include ranches (with associated roads, buildings, powerlines and pastures), and some livestock projects such as seedings and reservoirs. These highly visible developments diminish the perception of naturalness along the eastern escarpment in the northwest corner of the WSA.

**Opportunities for Solitude or Primitive and Unconfined Types of Recreation**

All five WSAs offer outstanding opportunities for solitude. The size and configuration of the mountain range provide excellent opportunities for dispersed use. Visitors tend to use natural travel corridors along the bottoms of major canyons, easily accessible ridge tops or the headwater basins. Topography and vegetation provide excellent screening in these high use areas and opportunities for solitude are outstanding. The short tributary drainages into the main canyons provide visitors with ample opportunities to find seclusion. Each WSA has 40 to 60 miles of canyons and tributaries.

Normally, traffic is light and irregular on the boundary roads and only affects opportunities for solitude in adjacent areas for brief periods. However, during the hunting season, traffic usually increases, significantly reducing opportunities for solitude along the WSA's boundaries during this period.

Opportunities for solitude are limited in the three small extensions of the Disaster Peak WSA, between the numerous parcels of private inholdings along the west side of the Willow Creek WSA and in the northern-most extension of the Willow Creek WSA.

A description of opportunities for solitude in the specific WSAs follows:

**Willow Creek WSA** - The configuration and size of the canyons and tributaries of the WSA combined with a patchwork of mountain mahogany, quaking aspen and willow in the riparian zones offer visitors numerous opportunities to find a secluded spot. However, the numerous private inholdings concentrated in the southwestern quarter of the WSA create corridors of public land that are only 0.5 to 1 mile wide. The narrowness of these corridors reduces opportunities for solitude. Outside sights and sounds are brief or distant and do not disrupt a visitor's sense of solitude.

**Disaster Peak** - In addition to canyons and tributaries, this WSA has extensive stands of vegetation that may be nearly impenetrable except where numerous game and cattle trails allow access to enclosed clearings and springs. Opportunities for solitude are generally very good except in three areas: The mile-wide extension just to the west of Sherman's Field where frequent contact between visitors is likely to occur, the southern-most extension and a portion of the western-most extension, the last two of which are narrow with open slopes and low brush cover. With the exception of these three narrow extensions, outside sights and sounds are too brief and distant to infringe upon opportunities for solitude in the WSA.

**Fifteenmile Creek WSA** - The canyons, tributaries and thickets of mountain mahogany and quaking aspen in the headwater basins provide dense screening in many locations. Downstream, the thickly vegetated riparian areas in the canyon bottoms also provide excellent cover. Outside sights and sounds include features and activities associated with Doolittle Cow Camp and vehicle traffic on the boundary roads. Opportunities for solitude are limited in the vicinity of the cow camp due to its high visibility, and along the road to the cow camp and boundary roads due to motorized vehicle use.

**Oregon Canyon WSA** - Most of the canyons and tributaries are short headwater drainages leading to larger systems outside of the WSA. Ridgetops inside the WSA are generally exposed; however, they can provide some topographic screening and there are pockets of vegetative cover. The short, steep canyons along the eastern and southern edge of the WSA would receive less use than the rest of the WSA and therefore would offer excellent opportunities to find a secluded spot. Ranching operations, mineral exploration and transportation activities in the lowlands to the south and east of the WSA limit opportunities for solitude on the slopes.

**Twelvemile Creek WSA** - Numerous, very dense thickets of brush and groves of mountain mahogany and quaking aspen grow in the headwater basins and on upper ridgelines. Riparian vegetation provides much less screening in the lower drainages. The 0.25-mile wide western-most extension of the WSA contains low, rolling hills. Due to the configuration of this section, visitors would be confined and their opportunities for solitude would be reduced. Outside sights and sound include ranching activities along the northern and eastern edges of the study area. The
effects diminish with distance and do not penetrate very far into the area from the north, but the influence on the eastern escarpment is more prominent and consequently opportunities for solitude along these exposed slopes are limited. Traffic on the boundary and dead-end roads to the south and west influence narrow adjacent areas of the WSA.

Primitive and unconfined types of recreation opportunities are outstanding in all five WSAs. Table 9 lists outstanding primitive recreation opportunities available in each WSA.

The land in the study area provides excellent opportunities for primitive and unconfined recreation. The major canyons provide many hiking and backpacking routes which vary in distance and difficulty. Water and campsites along these routes are abundant.

A variety of plant and wildlife species, interesting geologic formations and panoramic desert vistas provide attractions for sightseers, birdwatchers and photographers. The gentle ridgetops and consistent snowpack on the higher ridges provide good conditions for cross-country skiing and snow shoeing. Trophy mule deer and other game species are available and are hunted with a high degree of success. Native trout found in pools and beaver ponds of several major streams provide sport for the dedicated angler.

Portions of the WSAs do not provide outstanding opportunities for primitive and unconfined recreation. These portions include the open slopes of the eastern-most and western-most extensions of the Disaster Peak WSA; the western-most extension and the eastern escarpment of the Twelvemile Creek WSA; and the eastern and southern slopes of the Oregon Canyon WSA.

**Special Features**

The following special wilderness features occur in all the WSAs:

**Geologic Features** - The andesite, rhyolite and dacite flows of the Trout Creek formation provide the professional and amateur geologist an opportunity to study the overlying volcanics and the sedimentary leaf-bearing beds underneath. Each WSA has geologic landmarks, such as Disaster Peak, Whitehorse Canyon and the escarpments along the south and east sides of the mountains. These features are characteristic of the tilted faultblock mountains of the Basin and Range Physiographic Province in southern Oregon.

**Plants** - There is a greater variety of plants in the Trout Creek Mountains group of WSAs than there is in most other areas of southeastern Oregon. Although few uncommon species are known to occur in the study area, topography and rainfall have resulted in a diverse array of ecosites which support a great variety of species, both woody and herbaceous. Plant communities range from extensive aspen stands at higher elevations to salt desert shrub complexes on the edge of the Great Basin.

One plant species of special interest, Collomia macrocalyx (bristle-flowered collomia), occurs in the Oregon Canyon WSA and is a Federal candidate for listing under the Endangered Species Act. Plant community diversity and bristle-flowered collomia are further discussed in the vegetation section.

**Animals** - The Trout Creek Mountains group of WSAs contain what is considered to be some of the highest quality mule deer and sage grouse habitat in Malheur County. In addition, the area provides excellent California bighorn sheep habitat (see Map 6) and in 1987 they were reintroduced in the Oregon Canyon WSA. California bighorn sheep are Federal candidates for listing under the Endangered Species Act. (For more information, refer to the wildlife section).

Three large predators (Coyote, bobcat and cougar) may be found in this area. Although they are rare, cougars have been seen along Little Whitehorse Creek.

Two trout species with limited distributions are found in the Trout Creek Mountains group of WSAs. The Willow/Whitehorse cutthroat trout is a candidate for Federal listing under the Endangered Species Act and has self-sustaining populations in the Willow Creek, Little Whitehorse Creek, Fifteenmile Creek, Whitehorse Creek, Dool little Creek and Antelope Creek drainages.

The second species is the Lahontan cutthroat trout, which is Federally-listed as threatened in Nevada and is native to the Lahontan Basin. Native populations of Lahontan cutthroat trout exist in the Sage Creek and Line Canyon drainages of the Disaster Peak WSA.

These two populations are among the few remaining genetically pure strains of native trout left in the Pacific Northwest. The physiological adaptations of these species are valuable to fish biologists seeking to reintroduce trout into harsh desert stream environments. They may also be important in interpreting the biogeographical history of the Great Basin and the Columbia Plateau (refer to the Wildlife section for more information.)
Lahontan redside shiners are also found in these streams, which represent the northern-most extent of their range.

The diversity of species is perhaps the area's most significant wildlife characteristic. This is a reflection of the variety of natural communities that vary from semi-arid sagebrush desert to stream and riparian habitats.

Ecological Relationships - The area contains an unusually wide variety of environmental conditions that allow for a corresponding diversity of plant and animal life. The wide range in elevation (i.e. 4,500 to 8,500 feet) offers an opportunity to study a diverse high-desert ecosystem. The aquatic and riparian habitats provide a dramatic contrast to the surrounding desert environment. The complexity and diversity of the natural communities are increased by the presence of the perennial streams. Riparian areas support organisms capable of living in the transitional area between the creeks and the arid desert. The unique trout species offer an excellent opportunity to study adaptations to a harsh environment.

Cultural Resources - The area's cultural resources are not well known, but small scale surveys indicate that sites are common within the WSAs. These sites represent a wide range of time and cultural activity, thus there is a high potential for the occurrence of significant cultural resources. As of 1988, there are no less than 45 known prehistoric sites in the WSA group: 10 in the Willow Creek WSA, four in the Disaster Peak WSA, 1 in the Fifteenmile Creek WSA, six in the Twelvemile Creek WSA and 14 in the Oregon Canyon WSA.

Visual Resources - Outstanding scenic quality may be found in the Willow Creek, the Disaster Peak and the Fifteenmile Creek WSAs. The Oregon Canyon WSA offers outstanding scenery in the canyons but not on the outer slopes of the escarpment. The Twelvemile Creek WSA does not offer outstanding scenery.

Diversity of the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, all of the WSAs in the Trout Creek Mountains group lie within the Intermountain Sagebrush Province. The potential natural vegetation of most of the area is sagebrush steppe. Potential natural vegetation for portions of the Willow Creek and Twelvemile Creek WSAs is a salt desert shrub complex.

Table 10 identifies the plant communities listed in the Basin and Range section of the Oregon Natural Heritage Plan that are found in the WSAs.

The WSA group is within five hours' driving time from two standard metropolitan statistical areas with populations over 100,000: Boise, Idaho and Reno, Nevada.

Energy and Mineral Development

The energy and mineral resources of the Trout Creek Mountains group of WSAs were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment sampling by the Oregon Department of Geology and Mineral Industries (DOGAMI) and by Barringer Resources, Inc., under BLM contracts. DOGAMI evaluated the energy and mineral resources of that portion of the Trout Creek Mountains group situated in Oregon, and Barringer Resources, Inc. evaluated the energy and mineral resources of that portion of the group situated in Nevada.

Technical details of the DOGAMI evaluation are incorporated in a report titled "Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon." Technical details of the Barringer Resources, Inc. evaluations are incorporated in a report titled "Geochemical and Geostatistical evaluation of Wilderness Study Areas, Winnemucca District, Northwest Nevada." Using these evaluations, a heavy mineral analysis by Barringer Resources in 1984, and new information, the mineral potential of the Trout Creek Mountains group was revised during July 1987.

Approximately 2,800 acres in the eastern portion of the Disaster Peak WSA is an Area of Critical Mineral Potential (ACMP). An ACMP is an area of existing or de facto withdrawal from mineral development that has been nominated by members of the public as having mineral potential that is important to the local, regional, or national economy, or that could become important in the future. ACMPs are used by the BLM to reevaluate the withdrawals.

The Trout Creek Mountains group has been classified according to a rating system that indicates both the potential for occurrence of certain minerals as well as the quantity and quality of data on which the rating is based (level of certainty). A description of the rating system is provided in the Statewide EIS volume.
Table 3 shows the energy and mineral classification for the five WSA, and Table 5 lists the acres of moderate and/or high potential for occurrence in each WSA, by commodity. Map 5 shows those commodities rated as having moderate and/or high potential for occurrence.

The Trout Creek Mountains group of WSA, located in the Trout Creek Mountains, which are part of a broad uplifted area in the northern portion of the Basin and Range Physiographic Province. Surface geologic material found in these WSA consists largely of Late Tertiary (Miocene) volcanic rocks (welded tufts and rhyolite/dacite flows, various types of basalt/andesite flows and flow breccias, etc.), with lesser amounts of Late Tertiary tuffaceous lake and stream sediments and minor outcrops of Quaternary and Tertiary silicic (ryhodacite) volcanic vents. A pre-Tertiary (Cretaceous) quartz monzonite/granidiornite intrusion crops out in the southern portion of the Disaster Peak WSA in Nevada, and may underlie most of the southern half of the WSA. No other pre-Tertiary rock is known to be exposed in the Trout Creek Mountains group and it is not known what underlies the Cenozoic cover in the northern 80 percent of the group.

Much of the Tertiary volcanic material appears to have originated from two large, apparently extinct, volcanic centers: The Whitehorse Caldera located near the northwestern boundary of the WSA, and the McDermitt Caldera located along the southern and southeastern margins of the WSA. These volcanic centers have greatly influenced the geologic characteristics of the Trout Creek Mountains group and have contributed to the formation of several mineral occurrences.

**Energy Resources**

Based on indirect evidence, the entire Trout Creek Mountains group is considered to have a moderate potential for the occurrence of geothermal resources suitable for low-temperature, direct-heat application (e.g., space heaters) due to the evidence of geologically recent volcanism in the area and above normal heat flow. Based on direct evidence (i.e., known occurrences in above normal concentrations), portions of the Trout Creek Mountains group are considered to have a moderate potential for the occurrence of uranium/thorium.

As of October 16, 1987, there were no geothermal or other mineral leases in the Trout Creek Mountains group.

**Mineral Resources**

No confirmed mineral deposits have been found in the Trout Creek Mountains group of WSA. However, gold, silver and mercury are known to occur in portions of the group. Fairly substantial amounts of gold occur in the eastern portion of the Disaster Peak WSA; consequently, based on this direct evidence, this portion of the WSA is considered to have a high potential for the occurrence of gold. Also based on direct evidence, portions of the Trout Creek Mountains group are considered to have a moderate potential for gold, beryllium, silver and mercury. Beryllium, silver and mercury are strategic and critical metals.

Based on direct evidence (i.e., known occurrences), portions of the Disaster Peak WSA are considered to have a moderate potential for occurrence of lithium bentonite (hectorite) and zeolite.

As of October 16, 1987, there were 64 mining claims (62 lode and two placer) located totally or partially within the Trout Creek Mountains group of WSA. They are located in the southeastern portion of the Oregon Canyon WSA (29 claims) and in the eastern and southern portions of the Disaster Peak WSA (35 claims).

**Vegetation**

The amount and types of major vegetative communities present in each WSA, as well as the overall ecological status of each WSA, are shown in Table 11. Smaller communities have been added to the figures compiled for the major types.

The predominant plant communities in the WSA are generally typical of sagebrush/grass ecosystems, with low sagebrush dominant on the more shallow and rocky soils, Wyoming big sagebrush dominant on the deeper soils, and pockets of Basin big sagebrush on alluvium. However, a much greater shrub/tree component is located in these WSA than is usually found in sagebrush ecosystems. Extensive stands of curleaf mountain mahogany occur frequently in each of the WSAs, as well as quaking aspen groves in the headwater basins. Two additional tree species are found in drainages in several of the WSAs: Cottonwood occurs in the Disaster Peak and Twelvemile Creek WSA, and alder occurs in all the Twelvemile Creek WSA. Shrubs such as ocean spray, elderberry, snowbrush ceanothus, snowberry and serviceberry, which are less commonly found in sagebrush-dominated communities, co-occur...
with the more common golden and squaw currants, bitterbrush, rose, willow, chokecherry, mock orange and red-osier dogwood. Shrubs characteristic of salt desert shrub add to the diversity of the units: Winterfat, spiny hop sage, greasewood, bud sage and shadscale occur at lower elevations along the borders of the Willow Creek and Twelvemile Creek WSA.

The most abundant grass species in the WSA s are bluebunch wheatgrass, Idaho fescue, Cusick’s bluegrass, Sandberg’s bluegrass, Thurber’s needlegrass, giant wildrye, bottlebrush squirreltail and cheatgrass. Mountain brome is found in the Disaster Peak and Fifteenmile Creek WSA. A great diversity of forbs occur in all the WSA’s and include numerous species of Indian paintbrush, lupine, phlox, arrowleaf balsamroot, locoweed, wild onion, penstemon, buckwheat, daisy fleabane and yarrow.

Each WSA contains the potential for rich riparian habitat, however, extensive livestock use in the riparian zone has resulted in early ecological status of riparian vegetation in areas most accessible to livestock. In these areas, which comprise 57% of the riparian communities in the WSA’s, vegetation consists of nettles, iris and other low ecological status herbaceous species. Scattered, heavily browsed woody species such as willow and rose occur in the severely grazed areas. Remote, narrow canyons which are less accessible to livestock support herbaceous species such as sedges, rushes, monkey flower and clematis. Where livestock have not grazed, the riparian zone supports dense stands of shrubs such as willow, rose, current, chokecherry, mock orange and red-osier dogwood. These areas are in late ecological status or at the potential natural community. Trends in the early and mid ecological status riparian zones remain static due to continued livestock use in summer and fall.

Three plant species of special interest occur within the group of WSA’s. Collomia macrocalyx (bristleflowered collomia) occurs in the Oregon Canyon WSA. This plant, a Federal candidate for listing under the Endangered Species Act, is a small annual found in crevices on talus slopes and in rocky places. Two species that are listed in the Oregon Natural Heritage Database as threatened in Oregon, but more common or stable elsewhere, are Melica stricta (rock oniongrass) which occurs in the Oregon Canyon WSA and Symphoricarpos longiflorus (longflowered snowberry) which occurs in the Fifteenmile WSA.

Wildlife

The WSA’s contain some of the most outstanding and diverse high desert wildlife habitat in eastern Oregon. The 4,500 to 8,500-foot elevations afford an excellent diversity of vegetative communities. Aspen groves are abundant and provide high quality cover, forage and nesting habitat for game and nongame species. Extensive stands of mountain mahogany, buckbrush and bitterbrush, and limited stands of alder and willow also supply key cover and forage elements in canyon environments. In contrast, windswept ridges support vegetation of low stature including several species of sagebrush, forbs and grasses. Generally speaking, there is an excellent mixture of food, cover and water throughout all five WSA’s, and this is reflected in the rich diversity of wildlife present.

Riparian habitats are highlighted as critical use areas for both fish and wildlife. Riparian zones are especially important for wild trout fisheries that are sustained in many drainages of the WSA complex. Livestock grazing has had a serious and widespread effect on water quality and the plant communities upon which fish and wildlife populations depend. The normal watershed regenerating process that follows beaver activity in stream corridors has been disrupted and not allowed to stabilize through plant recruitment and retention of water and soil, because of repeated summer season grazing treatments. Grazing has also intensified erosion of stream banks. The increased sediment input to the streams has degraded fish habitat by filling pools that would normally allow adults to withstand the summer heat and depleting the availability of clean spawning gravels.

There is a variety of self-sustaining fish populations supported within the WSA complex. High profile species include Lahontan cutthroat trout and Willow/Whitehorse cutthroat trout. Lahontan cutthroats are Federally listed as threatened in Nevada, and the Willow/Whitehorse cutthroat is a Federal candidate for listing under the Endangered Species Act. Important fisheries by drainage in the WSA complex are given in Table 12.

The variety and concentration of big game in the Trout Creek Mountains is impressive. Rugged mountainous topography provides a variety of sites suitable for mountain mahogany and bitterbrush which are important foods for upland browse species. Mule deer habitat quality is excellent within the complex due to well distributed forage, water and cover. ODFW has managed the Trout Creek Mountains complex as a trophy mule deer management area by limiting hunting. California bighorn sheep, a candidate for Federal listing under the Endangered Species Act, were reintroduced into the Oregon Canyon WSA in the fall of 1987. A total of 27 animals were released in the vicinity of Oregon Canyon. The herd will be managed without hunting until it reaches
a size that can accommodate hunting pressure. Antelope utilize the low sagebrush ridges and plateaus. Populations appear to be stable at less than 100 head. See Map 6 for a depiction of the distribution of bighorn sheep habitat.

Non big-game wildlife species are also well represented. Sage grouse, a Federal candidate species, inhabit all of the WSAs especially in areas with a good mixture of low sage, big sage and mountain meadows. The Trout Creek Mountains complex is considered some of the highest quality sage grouse range in Malheur County. Chukars are common throughout the canyons where talus, water and cheatgrass are available.

Nongame species of wildlife too, are well represented in the WSAs. Over 60 species of birds may be observed in the WSAs and there is a high diversity of moths and butterflies, and other insects. Especially noteworthy species are two large, western Silkworm moths, Hyalophora euryalis and H. gloveri, and two large Admirals, Limenitis weidemeyeri and L. lorquini.

**Watershed**

The Trout Creek Mountains WSAs contain several miles of perennial streams with the majority in fair to poor condition and some in good condition. Livestock grazing during the summer and fall period has caused removal of riparian vegetation necessary for stream stability. Removal of streamside vegetation coupled with large storm events have produced serious downcutting of the stream channels into their alluvial floodplains. The streams have become wide and shallow, with increased summer stream temperatures and removal of large quantities of channel bank and bottom sediments. Many of the streams including Willow Creek, Whitehorse Creek and its tributaries, Antelope Creek and Twelvemile Creek, originate in the upper slopes of the Trout Creek Mountains and flow northward through steep, narrow canyons, eventually draining into the Coyote Lake Basin playa. Exceptions to this are Kings River and McDermitt Creek in the Disaster Peak WSA and all streams within the Oregon Canyon Creek WSA which flow to the east and southeast. Oregon Canyon Creek flows in a northerly direction within the WSA, then turns toward the south outside of the WSA boundaries. Gently sloping, relatively flat summits produce headwater stream gradients of five to six percent, which rapidly increase to seven to nine percent immediately downstream. Further downstream, the stream channels pass through several miles of deep, narrow canyons which have average gradients of 1.5-3.0 percent. Average annual precipitation ranges from 8 to 12 inches, with approximately half occurring as snow from November through February at the higher elevations.

**Livestock Grazing**

Portions of seven grazing allotments lie within the five WSAs. Currently, all public lands in the WSAs are leased for livestock grazing. Table 7 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 60 miles of fences, 22 reservoirs and 18 springs.

Livestock operators use motor vehicles on ways approximately 45 to 55 times per year for fence and reservoir inspection and maintenance, to check on livestock, spread salt and to supply and operate a cow camp located on private land within the Willow Creek WSA. The roads are used 90 to 100 times per year for the same purposes as well as to supply and operate Doolittle Cow Camp located within the Fifteenmile Creek WSA. Due to topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback from the two cow camps.

Present stocking rates and season of use do not meet land use plan objectives for the riparian and upland areas.

**Recreation Use**

Primitive recreation use occurs in all WSAs and specific opportunities within each WSA are discussed in the Wilderness Values section. Although the drainages throughout the WSAs make certain areas difficult to traverse, hunting is very popular and has yielded excellent results. High quality food and cover maintain a healthy population of mule deer, and ODFW has designated the Trout Creek Mountains as a trophy mule deer management area. Chukar are plentiful where habitat is favorable and hunting is considered to be fair to good. Antelope, sage grouse, quail and small game populations are also present but many other areas offer equal chances of success with easier access.

Fishing in the WSAs is light due to the remoteness of the area, difficult accessibility and the limited recreational fishery. Rainbow-Lahontan trout hybrids occur in the Oregon Canyon WSA and in the Kings River in the Disaster Peak WSA, and McDermitt Creek has populations of hybrid-rainbow, brook and
brown trout. The distribution of trout species in the stream drainages of the WSAs is presented in Table 12.

Recreational horseback riding is somewhat limited by the steep, rough terrain and livestock fences. Some use occurs in conjunction with other recreational pursuits such as hunting.

The area has an excellent variety of subjects for bird and wildlife observers and photographers. The casual visitor may see mule deer, coyotes, rabbits, chipmunks, ground squirrels, sage grouse, doves, chukar and a variety of snakes, lizards, raptors and songbirds. Less commonly, beavers, owls and bobcats may be encountered. Wildflowers are abundant during the spring and early summer, and tall colors enhance a landscape of exceptional scenic beauty.

Most of the vehicle use and recreational activities occurring in the WSAs are associated with hunting. Hunting access is dispersed along the boundary roads and ways of the WSAs. Hunters, hikers and other recreationists enter the WSAs from the west via the Trout Creek Mountain Road, from the south via a road that parallels McDermitt Creek and from the northwest via the roads that parallel Antelope and Willow Creeks. Some access also occurs from the southwest via the Kings River road.

Once inside the group of WSAs, recreationists generally travel along the divide-road that runs from east to west across the top of the mountain range and provides access to campsites or ridges, headwater ravines, and other travel corridors. From the divide road, recreationists either drive down a secondary route or leave the vehicle and hike into a desired location. All major canyon bottoms are blocked by natural barriers which limits travel to hiking or horseback riding.

Private lands currently block public access to several roads that lead to the lower end of some canyons. This arrangement forces some visitors to hike around private land to reach the lower canyons. For example, this occurs at Whitehorse Canyon, Oregon Canyon and Twelvemile Creek Canyon. It also applies to the top of the mountain range because Sherman Field blocks access to the south-central portion of the group of WSAs from the southwest.

Approved ORV designations currently restrict off-road vehicle travel to existing roads and ways in the WSAs, except in the portion of the Disaster Peak WSA in Nevada, which is open to ORVs. Total recreation use in the WSAs is approximately 6,000 visitor days per year.

### Local Personal Income

Livestock use at the current level of 20,073 AUMs and recreation use totaling 6,000 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $240,876 for livestock grazing and $72,000 related to recreation use of the WSA, for an overall total of $312,876. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

### 4. Environmental Consequences

#### Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

### Impacts of the Alternatives

#### All Wilderness

Recommended suitable for wilderness: 185,395 acres.

Recommended nonsuitable for wilderness: 0 acres.

### Impacts on Wilderness Values

All 185,395 acres in the five WSAs would be added to the National Wilderness Preservation System (NWPS) including: 30,565 acres in the Willow Creek WSA, 32,040 acres in the Disaster Peak WSA, 51,290 acres in the Fifteenmile Creek WSA, 42,900 acres in the Oregon Canyon WSA and 28,600 acres in the Twelvemile Creek WSA. Wilderness values within the 185,395 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collomia macrocalyx (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations would also be protected.
Naturalness

Presently 14 percent of the area in the WSA's is influenced by internal unnatural features (see Table 8). The naturalness of the five WSA's would be enhanced by prohibiting motorized vehicle use on 115 miles of ways (25 miles in the Willow Creek WSA, 18 miles in the Disaster Peak WSA, 40 miles in the Fifteenmile Creek WSA, 12 miles in the Oregon Canyon WSA and 20 miles in the Twelvemile Creek WSA). Closure of the ways, which influence approximately 9,650 acres (slightly more than five percent of the WSA's total area), would improve naturalness by allowing the ways to revegetate. Within three to five growing seasons, natural revegetation would render the ways unnoticeable.

Approximately 40 miles of ways would be used by heavy equipment every 5-10 years to maintain reservoirs and developed springs. Such infrequent use would not prevent revegetation of the ways. Water developments that are not located on ways would be maintained by cross-country travel totaling approximately 14 miles and causing minimal disturbance to naturalness.

The proposed construction of 20 miles of new fences adjacent to Whitehorse, Doolittle and McDermitt Creeks, and in the Oregon Canyon WSA, would enhance wilderness values by protecting natural habitats and allowing riparian areas to recover from grazing pressure on approximately 80 miles of streams. The fences, as unnatural features, would influence approximately 900 acres.

Solitude

Opportunities for solitude provided by the WSA's 250 miles of canyons and tributaries would be further improved by closing 115 miles of ways to motorized vehicles. Vehicles would be limited to boundary roads and the dead-end roads that penetrate the WSA's. Closure of the ways would especially benefit opportunities for solitude on the plateaus between the canyons, where most of the ways are located, because vehicles are visible for great distances there. Activities associated with fence and pool construction, and reservoir maintenance would cause short-term, local impairment of opportunities for solitude in adjacent areas.

Primitive and Unconfined Recreation

Closure of 115 miles of ways to motorized vehicle use and their eventual revegetation would increase opportunities for primitive and unconfined recreation such as hiking, backpacking, camping, horseback riding, birdwatching, photography and hunting. A more natural, primitive, wild setting would be provided.

Fencing 20 miles of riparian areas adjacent to Whitehorse and McDermitt Creeks would exclude livestock, allow vegetation to recover and enhance opportunities for hunting, fishing and primitive camping. The construction of 50 pools along Antelope, Whitehorse and Doolittle Creeks using natural materials would also improve availability of habitat for fish and have a minimal impact on the natural appearance of the creeks. Deer, bird and fish populations would increase in size, providing improved recreation opportunities.

Special Features

Eliminating motorized vehicle use on 115 miles of ways would reduce impacts to special features, which include populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collomia macracyclus (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations. These impacts include soil compaction and rutting of riparian areas which degrades habitat for plants and fish, minor seasonal disturbance of terrestrial wildlife, impairment of scenic vistas and possible destruction of or damage to cultural sites.

By excluding livestock, the fences along Whitehorse, Doolittle and McDermitt Creeks would result in restoration of the riparian vegetation, increased wildlife/fish habitat and improved scenic quality.

Conclusion: Wilderness designation of the entire area in each of the five WSA's (totaling 185,395 acres) would protect and enhance existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 175,200 acres of public land within the Trout Creek Mountains group to mineral entry. A total of 10,195 acres of split-estate land would be open to mineral exploration and development. In addition, 3,960 acres of private land would be open to mineral exploration and development at the landowners' discretion.
Energy Development

Projected exploration for leasable energy resources, including geothermal resources, would be precluded on 175,200 acres. Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual exploration, without development, is postulated for geothermal resources on the 10,195 acres of split-estate land and 3,960 acres of private land. No other leasable energy development activities have been projected.

Projected exploration for uranium/thorium would be precluded on 175,200 acres. Exploration is projected to occur on the 10,195 acres of split-estate land and 3,960 acres of private land within the Trout Creek Mountains group. The discovery of an economically-mineable deposit is not expected and no development is projected.

Conclusion: No impact to energy development is expected.

Mineral Development

Projected exploration for mineral resources (including gold, silver, mercury, beryllium, lithium bentonite and zeolites) would be precluded on 175,200 acres.

Production from nine projected gold/silver/mercury mines, one projected lithium bentonite mine, and one projected zeolite mine would be foregone. Exploration for mineral resources on 10,195 acres of split-estate and 3,960 acres of private land in the Trout Creek Mountains group is projected. The discovery of economically-mineable deposits is not expected and no development is projected.

Conclusion: Production of gold, silver and mercury from nine projected mines, lithium bentonite from one projected mine and zeolites from one projected mine would be forgone.

Impacts on Vegetation

Under this alternative, 115 miles of ways would be closed, with revegetation anticipated in three to five years. Construction of 50 pools to improve fish habitat (in all but the Disaster Peak WSA) would generally result in soil build-up as these natural rock and log structures trap sediments. Herbaceous vegetation would respond quickly by colonizing stream edges where soil is available for rooting and expansion. As the riparian zone expands with further soil entrapment and increased water-holding capacity, woody vegetation would be expected to colonize these areas. Long-term results of pool development would be an enhanced riparian zone with improved herbaceous and woody vegetative cover along 3 miles of stream.

Twenty miles of fences would be constructed to control livestock grazing in all WSAs. Because livestock tend to congregate in riparian zones, these areas receive heavy livestock utilization and do not reach their potential natural communities. Better management of livestock by fencing would enhance vegetation along 80 miles of stream riparian habitat by allowing succession to proceed towards the potential natural community, increasing diversity and density of riparian herbaceous and woody vegetation and helping to reduce utilization, which in turn would allow for an increase in residual ground cover. Better rotational grazing in allotments with additional fences would promote advancement of seral stages in the upland areas as well, because the grasses would not be grazed yearly in the spring-critical growing season.

Conclusion: A total of 115 miles of closed ways would revegetate in three to five years. Riparian vegetation would be improved on approximately 80 miles of streams. Upland range conditions would improve.

Impacts on Wildlife

Wildlife habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM wilderness policy. Closure of 115 miles of ways would substantially reduce disturbance of big game species including mule deer, antelope and bighorn sheep by limiting hunter and other recreational vehicle access. Big game use would tend to be more evenly distributed within the WSAs especially during the fall hunting period.

Construction of 50 pools in all but the Disaster Peak WSA would help to expand cutthroat trout populations by increasing the number of resting and rearing areas along approximately 3 miles of stream. Construction of 20 miles of livestock management fence would allow grazing use to continue with reduced impacts to wildlife forage and fish habitat along 80 miles of stream. Fish populations would increase due to improved watershed stability, increased amounts of woody riparian cover and improved water quality. More wildlife forage would be available for big game due to improved management and recovery of vegetation.

Conclusion: Wildlife habitat and populations would be maintained on 185,395 acres.
Impacts on Watershed

Closure of 115 miles of ways would benefit watershed condition by increasing hillslope stability and decreasing erosion. Construction of 50 strategically-located instream structures (in all but the Disaster Peak WSA) would benefit stream conditions by improving stream-bank stability and riparian vegetation on 3 miles of streams.

Construction of 20 miles of pasture fencing would improve watershed condition through better livestock management. A grazing system that would allow rest and rotational grazing to occur would lead to improved riparian vegetation and upland conditions along 80 miles of stream.

Conclusion: Watershed condition would improve on 80 miles of perennial streams.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 20,073 AUMs within the portions of the seven allotments in the five WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 115 miles of ways would be precluded under wilderness designation. This would preclude access to a cow camp, located on private land within the Willow Creek WSA which is used as a base for horseback operations. This would result in considerable inconvenience and additional expense to livestock operators. Heavy equipment may be used once every 5 to 10 years for maintenance of 22 reservoirs and 18 springs. This periodic infrequent use would involve 40 miles of ways and 14 miles of cross-country travel.

The construction of a reservoir in the Fifteenmile Creek WSA and development of two springs, one in the Twelvemile Creek WSA and one in the Willow Creek WSA to improve livestock distribution, would be precluded.

Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek, 2 miles in Disaster Peak, 7 miles in Fifteenmile Creek, 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to improve riparian vegetation on 80 miles of streams through a change in grazing management.

Conclusion: Livestock use would remain at 20,073 AUMs. The use of 115 miles of ways for day to day livestock management would be precluded. Construction of one reservoir and two springs would be foregone.

Impacts on Recreation Use

The closing of 115 miles of ways to motorized vehicles would eliminate vehicle access into the WSAs for hiking and hunting. Recreationists would still be able to hike to most points in the WSAs from the boundary roads. Stream improvement from fencing projects would result in a slight increase in fishing. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases in vehicle oriented use caused by closure of the ways.

Conclusion: The area's recreation use level of approximately 6,000 visitor days per year would not be affected. Wilderness designation would result in a change to primitive, non-motorized types of recreation use.

Impacts on Local Personal Income

Livestock grazing would remain at 20,073 AUMs. Overall recreation use would remain at 6,000 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level of $312,876.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $313,000.

Enhanced Wilderness

Recommended suitable for wilderness: 190,585 acres (assuming the acquisition of 3,960 acres of private land)
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

The enhanced wilderness alternative would combine the five WSAs into a single wilderness area and would add 190,545 acres to the NWPS, assuming acquisition of 3,960 acres of private inholdings. This total includes 32,605 acres in the Willow Creek WSA, 33,320 acres in the Disaster Peak WSA, 51,490 acres in the Fifteenmile Creek WSA, 42,940 acres in the Oregon Canyon WSA, 29,000 acres in the Twelvemile Creek WSA and 1,230 acres of public land that are not within the boundary of any WSA. The mineral estate on 10,295 acres of split-estate land would also be acquired. All roads would be closed, including
39.5 miles of boundary roads and 11 dead-end roads totaling 13.5 miles. In addition, 115 miles of ways would be closed.

The entire combined area of the five WSAs would be designated wilderness, and wilderness values within the entire 190,585 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collomia macrocalyx (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations would also be protected. Acquisition of the mineral estate and private land would prevent projected disturbance from energy and mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The enhanced wilderness alternative would provide the greatest degree of protection and enhancement of the WSAs' naturalness. Closure of four boundary roads totaling 39.5 miles, 11 dead-end roads totaling 13.5 miles and 115 miles of ways would remove their influence on naturalness. Closure of the roads and ways, followed by natural revegetation would restore the natural appearance of approximately 20,480 acres (about 11 percent of the total area in the WSAs) in three to five growing seasons.

Acquisition of the mineral estate of 10,295 acres of split-estate lands and 32 private inholdings totaling 3,960 acres would preclude surface disturbance from projected energy and mineral exploration, thus preserving the naturalness of the area.

Approximately 40 miles of roads and 40 miles of ways would be used by heavy equipment every 5-10 years to maintain reservoirs and developed springs. Such infrequent use would not prevent revegetation of the ways. Water developments that are not located on ways would be maintained by cross-country travel totaling approximately 14 miles and causing minimal disturbance to naturalness.

The proposed construction of 20 miles of new fences adjacent to Whitehorse, Doolittle and McDermitt Creeks, and in the Oregon Canyon WSA, would enhance wilderness values by protecting natural habitats and allowing approximately 80 miles of riparian areas to recover from grazing pressure. The fences, as unnatural features, would influence approximately 900 acres.

Solitude

Opportunities for solitude provided by the WSAs' 250 miles of canyons and tributaries would be further improved by closing 53 miles of roads and 115 miles of ways to motorized vehicles. Closure of the roads and ways would especially benefit opportunities for solitude on the plateaus between the canyons, where most of the roads and ways are located, because on the plateaus vehicles are visible for great distances.

Activities associated with projected mineral exploration on 10,295 acres of split-estate land and 3,960 acres of private land would be precluded, thus local impairment of opportunities for solitude in adjacent areas would be avoided. Activities associated with fence and pool construction, and reservoir maintenance would cause short-term, local impairment of opportunities for solitude in adjacent areas.

Primitive and Unconfined Recreation

Closure of 53 miles of roads and 115 miles of ways to motorized vehicle use and their eventual revegetation would increase opportunities for primitive and unconfined recreation such as hiking, backpacking, camping, horseback riding, birdwatching, photography and hunting. A more natural, primitive, wild setting would be provided. In addition, acquisition of the 10,295 acres of mineral estate and 3,960 acres of private land would prevent projected mineral exploration, thus preserving a natural setting for primitive recreational pursuits.

Fencing 12 miles of riparian areas adjacent to Whitehorse and McDermitt Creeks would exclude livestock, allow vegetation to recover and enhance opportunities for hunting, fishing and primitive camping. The construction of 50 pools along Antelope, Whitehorse and Doolittle Creeks using natural materials would also improve availability of habitat for fish and have a minimal impact on the natural appearance of the creeks. Deer, fish and bird populations would increase in size, providing improved recreation opportunities for hunting, fishing and birdwatching.

Special Features

Acquisition of the 10,295 acres of mineral estate and 3,960 acres of private land, which would prevent projected mineral exploration. Eliminating motorized vehicle use on 53 miles of roads and 115 miles of ways would further reduce impacts to special
features, which include populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and **Collomia macrocalyx** (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations. These impacts include soil compaction and rutting of riparian areas which degrades habitat for plants and fish, minor seasonal disturbance of terrestrial wildlife, impairment of scenic vistas and possible destruction of or damage to cultural sites.

By excluding livestock, the fences along Whitehorse, Doolittle and McDermitt Creeks would result in restoration of the riparian vegetation, increased wildlife/fish habitat and improved scenic quality.

**Conclusion:** Wilderness designation of 185,395 acres would protect and enhance existing wilderness values.

### Impacts on Energy and Mineral Development

Wilderness designation would close 176,330 acres of public land within the Trout Creek Mountains group to mineral entry. This total includes 1,230 acres of non-WSA public land bordering the group that would be designated wilderness with all but 100 acres of split estate closed to mineral entry. Assuming successful acquisition, 10,295 acres of mineral estate and 3,960 acres of private land would also be closed to mineral entry.

**Energy Development**

Projected exploration for geothermal resources and uranium/thorium would be precluded on 190,585 acres. No development activities have been projected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Projected exploration for mineral resources (including gold, silver, mercury, beryllium, lithium bentonite and zeolites) would be precluded on 190,585 acres. Production from nine projected gold/silver/mercury mines, one projected lithium bentonite mine, and one projected zeolite mine would be foregone.

**Conclusion:** Production from nine projected gold/silver/mercury mines, one projected lithium bentonite mine, and one projected zeolite mine would be foregone.

### Impacts on Vegetation

The 53 miles of roads and 115 miles of ways would be closed to vehicle travel and would revegetate within three to five years.

Construction of 50 pools for fish, which would be constructed in all but the Disaster Peak WSA, would result in an increase in herbaceous riparian vegetation along 3 miles of streams. Ultimately, an increase in woody vegetation would be expected as these pockets in the riparian zone are enhanced through siltation and improved habitat for riparian species.

Construction of 20 miles of fence will permit better control of livestock in all WSAs, resulting in improved vegetation conditions in both riparian and upland communities along 80 miles of stream. Utilization levels and timing of grazing use can be better managed with additional fences, and the ecological status would be allowed to advance toward the potential natural communities.

**Conclusion:** The 53 miles of roads and 115 miles of ways would revegetate. Riparian vegetation would be improved on approximately 80 miles of streams. Upland range condition would improve.

### Impacts on Wildlife

The enhanced alternative would result in many of the same environmental consequences as the all wilderness alternative. Wildlife habitat for approximately 1,200 mule deer, 100 antelope and 27 bighorn sheep and the WSAs’ nongame species would be improved due to closure of 115 miles of ways and 53 miles of roads. This action would substantially reduce vehicle disturbances of all wildlife, but particularly big game species. Short-term disturbances including habitat losses and wildlife displacement related to projected mineral exploration of private and split-estate lands would be avoided.

Construction of 50 pools in all but the Disaster Peak WSA would help to expand cutthroat trout populations by increasing the number of resting pools and rearing areas. Construction of 20 miles of livestock management fence would allow grazing use to continue with reduced impacts to wildlife forage and fish habitat along 80 miles of streams. Fish populations would increase due to improved watershed stability, increased amounts of woody riparian cover and improved water quality. More wildlife forage would be available for big game due to improved management and recovery of vegetation.
Conclusion: Wildlife habitat and populations would be maintained on 185,395 acres.

Impacts on Watershed

Closure of 53 miles of roads and 115 miles of ways would benefit watershed condition by increasing hillslope stability and decreasing erosion.

Construction of 50 strategically-located instream structures in all but the Disaster Peak WSA would benefit stream conditions through improvement in streambank stability and riparian vegetation on 3 miles of streams.

Construction of 20 miles of pasture fencing would improve watershed condition through better livestock management. A grazing system that would allow rest and rotational grazing to occur would lead to improved riparian vegetation along 80 miles of streams and improved upland conditions.

Conclusion: Watershed condition would improve on approximately 80 miles of perennial streams.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 20,073 AUMs within the portions of the seven allotments in the five WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 115 miles of ways and 53 miles of roads would be precluded under wilderness designation. This would preclude access to two cow camps, located within the Willow Creek and Fifteenmile Creek WSAs which are used as bases for horseback operations. This would result in considerable inconvenience and additional expense to livestock operators. Heavy equipment would be used once every 5 to 10 years for maintenance of 22 reservoirs and 18 springs. This periodic, infrequent use would involve 40 miles of ways, 40 miles of roads and 14 miles of cross-country travel.

The construction of a reservoir in the Fifteenmile Creek WSA and development of two springs (one in the Twelvemile Creek WSA and one in the Willow Creek WSA) to improve livestock distribution, would be precluded.

Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek, 2 miles in Disaster Peak, 7 miles in Fifteenmile Creek, 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to improve riparian vegetation on 80 miles of streams through a change in grazing management.

Conclusion: Livestock use would remain at 20,073 AUMs. The use of 53 miles of roads and 115 miles of ways for day to day livestock management would be precluded. Construction of one reservoir and two springs would be foregone.

Impacts on Recreation Use

The closing of 53 miles of roads and 115 miles of ways to motorized vehicles would eliminate vehicle access into the WSAs for hiking and hunting. Stream improvements from fencing projects would result in a slight increase in fishing and improve opportunities for viewing wildlife. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset decreases in vehicle oriented use caused by closure of the roads and ways.

Conclusion: The area's recreation use level of approximately 6,000 visitor days per year would not be affected. Wilderness designation would result in a change to primitive, non-motorized types of recreation use.

Impacts on Economic and Local Income

Livestock grazing would remain at 20,073 AUMs. Overall recreation use would remain at 6,000 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level of $312,876.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $313,000.

Proposed Action

Recommended suitable for wilderness: 180,440 acres (assuming acquisition of 3,960 acres of private land)
Recommended nonsuitable for wilderness: 10,145

Impacts on Wilderness Values

Under the proposed action, the entire areas of the Oregon Canyon WSA (42,940 acres) and Fifteenmile Creek WSA (51,490 acres) would be combined with a portion of the Twelvemile Creek WSA (25,660 acres),
and portions of the Willow Creek (28,200 acres) and Disaster Peak (30,920 acres) WSA would also be combined. The two combinations would form a single wilderness area. The 7-mile-long boundary road between the Willow Creek and Fifteenmile Creek WSA, the 10-mile-long road defining the southern boundary of the Fifteenmile Creek WSA, and the road into Doolittle Cow Camp would remain open. Private inholdings totaling 3,960 acres and the mineral estate on 9,465 acres of split-estate land would be acquired. In addition, 1,230 acres of public land adjacent to the Disaster Peak, Twelvemile Creek and Fifteenmile Creek WSA would be designated wilderness. The 5-mile-long road between the Willow Creek and Disaster Peak WSA, the 16 mile-long road between the Fifteenmile Creek WSA and the Twelvemile Creek and Oregon Canyon WSA’s and a 2-mile section of road in the northwest portion of the Disaster Peak WSA would be closed. In addition, 10 dead-end roads totaling 11.5 miles and 109 miles of ways would be closed.

A total of 180,440 acres (59,370 acres in the Willow Creek/Disaster Peak combination and 121,070 acres in the Twelvemile Creek/Fifteenmile Creek/Oregon Canyon combination) would be designated wilderness, and wilderness values within this area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collomia macrocalyx (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations would also be protected. Acquisition of 9,465 acres of mineral estate and 3,960 acres of private land would prevent projected disturbance from energy and mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

A total of 10,145 acres (4,405 acres in the Willow Creek WSA, 2,400 acres in the Disaster Peak WSA and 3,340 acres in the Twelvemile Creek WSA) would be recommended nonsuitable as wilderness and wilderness values on these lands would not receive legislative protection. Projected energy and mineral exploration and development on the 10,145 acres recommended nonsuitable would compromise wilderness values.

**Naturalness**

Twenty-three miles of roads between the WSAs, 10 dead-end roads totaling 11.5 miles and 109 miles of ways would be closed to motorized vehicles. Within three to five growing seasons, natural revegetation would make these roads and ways virtually unnoticeable. Closure of roads and ways would eliminate their unnatural influence on approximately 7,950 acres for the roads and 9,650 acres for the ways for a total of 17,600 acres (about 9.5 percent of the WSAs).

Approximately 40 miles of roads and 40 miles of ways would be used by heavy equipment every 5-10 years to maintain reservoirs and developed springs. Such infrequent use would not prevent revegetation of the ways. Water developments that are not located on ways would be maintained by cross-country travel totaling approximately 14 miles and causing minimal disturbance to naturalness.

Naturalness in the area recommended as nonsuitable (10,145 acres) would continue to be impacted by periodic use of 6 miles of ways and 18.5 miles of roads. Naturalness would be temporarily impaired by mineral exploration that would result in the drilling of 64 exploratory core holes, construction of 10.5 miles of access roads and a surface disturbance of 20 acres. Reclamation would prevent any long-term impacts on naturalness from these activities.

The development of one gold mine in the east-central portion of the Disaster Peak WSA would result in an upgrade of 3 miles of roads and 800 acres of long-term surface disturbance. The gold mine would visually impair naturalness on approximately 3,000 acres.

The proposed construction of 20 miles of new fences adjacent to Whitehorse, Doolittle and McDermitt Creeks, and in the Oregon Canyon WSA would enhance wilderness values by protecting natural habitats and allowing riparian areas to recover from grazing pressure. The fences, as unnatural features, would influence approximately 900 acres.

**Solitude**

Eliminating motorized vehicle use on 34.5 miles of roads and 109 miles of ways would improve opportunities for solitude. Precluding mineral entry and exploration on 9,465 acres of mineral estate and 3,960 acres of private land would preserve opportunities for solitude on those lands.

Road and way closures would increase the size of the core area where wilderness visitors’ solitude would not be disturbed by motorized vehicle use. Activities associated with fence and pool construction, and reservoir maintenance would cause short-term, local impairment of opportunities for solitude in adjacent areas.
Energy and mineral exploration would cause short-term, local impairment of solitude on the 10,145 acres recommended nonsuitable. Development of a gold mine in the east-central portion of the Disaster Peak WSA would cause long-term impairment of solitude for visitors in adjacent areas. Motorized vehicle use of the 18.5 miles of roads and 6 miles of ways remaining open, would continue to impair opportunities for solitude.

**Primitive and Unconfined Recreation**

The same increased opportunities for primitive and unconfined recreation resulting from closure of the ways identified under the all wilderness alternative, would occur under this alternative. In addition, acquisition of 9,465 acres of mineral estate and 3,960 acres of private inholdings would prevent projected mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on 34.5 miles of roads and 109 miles of ways would enhance opportunities for primitive and unconfined recreation by allowing the landscape to return to a more natural condition through revegetation.

Fencing 20 miles of riparian areas adjacent to Whitehorse and McDermitt Creeks would exclude livestock, allow vegetation to recover and enhance opportunities for hunting, fishing and primitive camping. The construction of 50 pools along Antelope, Whitehorse and Doolittle Creeks, using natural materials, would also improve availability of habitat for fish and have a minimal impact on the natural appearance of the creeks. Deer, fish and bird populations would increase in size, providing improved recreation opportunities for hunting, fishing and birdwatching.

Motorized vehicle use of the 18.5 miles of road and 6 miles of ways on the 10,145 acres recommended nonsuitable would detract from opportunities for primitive and unconfined recreation. Projected energy and mineral exploration on 10,145 acres would result in minor, short-term disturbance to primitive recreation opportunities. Development of one gold mine would cause long-term impairment of primitive-recreation opportunities in the vicinity of the mine.

**Special Features**

The acquisition of the 9,465 acres of mineral estate and 3,960 acres of private land would prevent projected mineral exploration and the disturbance to special features that would result from such activities. Eliminating motorized vehicle use on 34.5 miles of roads and 109 miles of ways would further reduce impacts to special features. These include impacts to populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and *Collomia macrocalyx* (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations.

By excluding livestock, the fences along Whitehorse, Doolittle and McDermitt Creeks would result in restoration of the riparian vegetation, increased wildlife/fish habitat and improved scenic quality.

Depending on the proximity of the gold mine to the creek in Line Canyon, the resident population of Lahontan cutthroat trout may be jeopardized if water quality in the creek deteriorates as a result of mining activities. Monitoring and mitigation would minimize or avoid impacts.

Continued operation of motorized vehicles on the 18.5 miles of roads and 6 miles of ways in the nonsuitable area would have a negligible impact on special features.

**Conclusion:** Wilderness designation of 180,440 acres (including acquisition of 3,960 acres of private land) would protect and enhance existing wilderness values. On the 10,145 acres designated nonsuitable for wilderness, projected activities would directly impair wilderness values on approximately 3,900 acres of the WSA with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 165,785 acres of public land within the Trout Creek Mountains group to mineral entry. In addition, 1,230 acres of non-WSA public land (including 100 acres of split-estate land) bordering the group would be included in wilderness and all but 100 acres of split-estate land would be closed to mineral entry. Assuming successful acquisition, 9,465 acres of mineral estate and 3,960 acres of private land would also be closed to mineral entry, for a total of 180,440 acres.

A total of 10,145 acres recommended as nonsuitable for wilderness would be open to mineral exploration and development.

**Energy Development**

Exploration for geothermal resources and uranium/thorium would be precluded on 180,440 acres. Due to a lack of sufficient geologic evidence to justify a serious exploration/development program, only casual non-surface-disturbing exploration (without
development) is projected for the nonsuitable portion of the Trout Creek Mountains group. No other leasable energy development activities have been projected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Projected exploration for mineral resources, including gold, silver, mercury, beryllium, lithium bentonite and zeolites would be precluded on 180,440 acres. Production from eight projected gold/silver/mercury mines, one projected lithium bentonite mine, and one projected zeolite mine would be foregone.

Mineral exploration is projected to occur in the nonsuitable portions of the Trout Creek Group. The development of one gold mine including the construction of 3 miles of access road would occur as projected.

**Conclusion:** Production of gold/silver/mercury from eight projected mines, lithium bentonite from one projected mine and zeolites from one projected mine would be foregone. Production would occur from one projected gold mine in the nonsuitable area.

**Impacts on Vegetation**

In the 180,440-acre suitable portion of the WSA, closure of 34.5 miles of roads and 109 miles of ways would result in their revegetation within three to five years.

Construction of 50 pools for fish, which would be constructed in all but the Disaster Peak WSA, would result in an increase in herbaceous riparian vegetation along 3 miles of streams. Ultimately, an increase in woody vegetation would be expected as these pockets in the riparian zone are enhanced through aggradation and improved habitat for riparian species.

Construction of 20 miles of fence will permit better control of livestock in all WSA's, resulting in improved vegetation conditions in both riparian and upland communities along 80 miles of streams. Utilization levels and timing of grazing use can be better managed with additional fences, and the ecological status would be allowed to advance toward the potential natural communities.

Short-term impacts to vegetation in the nonsuitable portion would be anticipated from projected mineral exploration activities. Seven exploratory trenches and 57 exploratory core holes would disturb vegetation on 20 acres, with revegetation occurring on these areas within three to five years assuming no further development takes place. Access road construction would remove vegetation on 10.5 miles of road, which also would revegetate within three to five years following cessation of activity on the roads.

A major long-term impact to vegetation would be anticipated from projected development of an open-pit gold mine in the Disaster Peak WSA. Vegetation would be removed on a long-term basis on 800 acres as a result of the mine. Three miles of road, which would be upgraded to provide access to the mine, would remain unvegetated due to continued use. Riparian vegetation would be degraded on approximately 3 miles of stream.

**Conclusion:** In the suitable area, revegetation would occur on 34.5 miles of roads and 109 miles of ways. Riparian vegetation would be improved along 80 miles of streams. Upland range condition would improve. In the nonsuitable portion, development of an open-pit gold mine would result in long-term removal of vegetation on 800 acres and degrade 3 miles of riparian vegetation.

**Impacts on Wildlife**

Wildlife habitat for approximately 1,200 mule deer, 100 antelope and 27 bighorn sheep and the areas nongame species would be improved primarily due to closure of 109 miles of ways and 34.5 miles of roads. This action would substantially reduce vehicle disturbance of all wildlife but particularly big game species. Short-term disturbances including habitat losses and wildlife displacement related to projected mineral exploration of split-estate and private lands would be avoided in the area recommended suitable.

Construction of 50 pools in all but the Disaster Peak WSA and the nonsuitable portion of the Willow Creek WSA would help to expand cutthroat trout populations by increasing the number of resting pools and rearing areas.

Construction of 20 miles of livestock management fence would allow grazing use to continue with reduced impacts to wildlife forage and fish habitat. Fish populations would be expected to increase somewhat due to improved watershed stability, increased amounts of woody riparian cover and improved water quality. More wildlife forage for big game would be available due to improved management and recovery of vegetation.

In the 10,145-acre nonsuitable area, projected development of one open-pit gold mine would
permanently disturb 800 acres and displace wildlife in the vicinity of the mine. Depending on the proximity of the mine to the creek in Line Canyon, the resident population of Lahontan Trout may be jeopardized if water quality in the creek deteriorates as a result of mining activities.

Conclusion: In the suitable area, wildlife habitat and populations would be maintained on 176,480 acres. In the nonsuitable area, wildlife habitat would be lost on 800 acres and a population of Lahontan cutthroat trout may be harmed.

Impacts on Watershed

In the suitable area, closure of 34.5 miles of roads and 109 miles of ways would improve watershed condition by increasing hillslope stability and decreasing erosion.

Construction of 50 strategically-located instream structures in all but the Disaster Peak WSA, would benefit stream conditions through improvement in streambank stability and riparian vegetation on 3 miles of streams.

Construction of 20 miles of pasture fencing would improve watershed condition through better livestock management by reducing the impact of grazing. The detrimental erosive effects resulting from a high utilization of riparian vegetation and trampling of banks by livestock would be alleviated, leading to bank stability. A grazing system that would allow rest and rotational grazing to occur would lead to improved riparian vegetation (e.g. willow, aspen, sedges and rushes) along 80 miles of streams and improved upland conditions.

In the nonsuitable area, disturbance associated with mineral exploration would have short-term impacts; however, 800 acres of surface disturbance associated with mineral development would cause long-term effects on approximately 5 miles of perennial streams. Construction of 10 miles of road, upgrading 3 miles of road, excavation of 57 exploratory core holes and seven exploratory trenches and the development of one open-pit gold mine would result in slope and stream bank instability, increased stream siltation and a change in timing of flows. Instream discharge would peak more quickly during spring runoff and storm events. Peak discharge would be higher and runoff events would be of shorter duration.

Conclusion: Watershed condition would improve on 80 miles of streams in the suitable portion. In the nonsuitable portion, projected mine development would degrade watershed conditions on 5 miles of streams.

Impacts on Livestock Grazing

In the suitable area, vehicle use for livestock management and facility inspection/maintenance on 109 miles of ways and 34.5 miles of roads would be precluded under wilderness designation. This would preclude access to a cow camp in the Willow Creek WSA, that is used as a base for horseback operations. This would result in considerable inconvenience and additional expense to livestock operators. Heavy equipment would be used once every 5 to 10 years for maintenance of 22 reservoirs and 18 springs. This periodic infrequent use would involve 40 miles of ways, 28 miles of roads and 14 miles of cross-country travel.

The construction of a reservoir in the Fifteenmile Creek WSA and development of two springs (one in the Twelvemile Creek WSA and one in the Willow Creek WSA) to improve livestock distribution, would be precluded.

Twenty miles of fence would be constructed in the WSA (4 miles in Willow Creek, 2 miles in Disaster Peak, 7 miles in Fifteenmile Creek, 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to improve riparian vegetation on 80 miles of streams through a change in grazing management.

In the nonsuitable area, forage allocation to livestock would remain at approximately 20,073 AUMs within the seven allotments in the five WSA despite a surface disturbance of 800 acres from mining activity. Improved forage resulting from livestock fencing would allow a sustained forage allocation.

Conclusion: Livestock use would remain at 20,073 AUMs. The use of 34.5 miles of roads and 109 miles of ways for day to day livestock management would be precluded. Construction of one reservoir and two springs would be foregone.

Impacts on Recreation Use

In the suitable area, a decrease in recreation dependent on motorized access, and increased opportunities for primitive and unconfined recreation would occur. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases in day hiking use and vehicle-oriented hunting. Construction of 20 miles of fence and 50 pools in Whitehorse, Antelope and Doolittle Creeks would enhance recreational use by
improving the naturalness and habitat quality of adjacent areas, and expanding populations of trout, birds and deer.

In the nonsuitable area, surface disturbance and disruption of wildlife from mineral exploration would cause short-term impairment of the natural setting for recreational activities, including hunting and fishing. Development of one open-pit gold mine would displace wildlife and could cause degradation of aquatic habitats, depending on their proximity to the mine. As a consequence, opportunities for recreation could be reduced in the vicinity of the mine.

**Conclusion:** The area’s recreation use level of approximately 6,000 visitor days per year would not be affected.

**Impacts on Economic and Local Income**

Livestock grazing would remain at 20,073 AUMs. Projected energy and mineral development would amount to one metallic mine. Overall recreation use would remain at 6,000 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $313,000. There would also be an unknown level of increase attributable to the projected mineral development.

**No Wilderness/No Action**

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 185,395

**Impacts on Wilderness Values**

Under the no wilderness alternative, the entire 185,395 acres (including 30,565 acres in the Willow Creek WSA, 32,040 acres in the Disaster Peak WSA, 51,290 acres in the Fifteenmile Creek WSA, 42,900 acres in the Oregon Canyon WSA and 28,600 acres in the Twelvemile Creek WSA) would not be designated wilderness, and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area’s special features, including populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collonia macrocalyx (bristle-flowered Collonia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations would be subject to the effects of the projected management actions.

Projected actions include mineral exploration and the development of eight open-pit and three underground mines, the upgrading of 24 miles of roads, construction of 20 miles of fence, development of one reservoir and two springs, continued vehicle use for livestock management and facility maintenance/inspection, and continued recreational vehicle use limited to existing roads and ways.

**Naturalness**

Continued vehicle use of the 53 miles of roads and 115 miles of ways would maintain the impact of the vehicle tracks upon naturalness on approximately 10,830 acres (5.7 percent of the WSAs) for the roads and 9,650 acres (5.2 percent of the WSAs) for the ways. Roads between the WSAs would continue to influence naturalness within the WSAs.

The drilling of 335 core holes and trenches, and construction of 100 miles of access road, followed by reclamation and natural revegetation, would cause short-term surface disturbance on approximately 206 acres of land. Natural revegetation would render the access roads unnoticeable in three to five growing seasons. Projected development of eight open-pit mines and three underground mines, including 24 miles of upgraded road, would cause long-term surface disturbance on 2,680 acres of land and visually influence naturalness over approximately 25,500 acres of the WSAs.

Construction of 20 miles of fence, one reservoir and 2 springs would result in an improvement of naturalness along Whitehorse, Doolittle, McDermitt and Antelope Creeks by reducing concentrations of livestock. The fencing would protect approximately 80 miles of streams, but would also add an unnatural feature visually influencing approximately 900 acres. The reservoirs and springs would cause four acres of surface disturbance and would visually influence approximately 130 acres.

**Solitude**

Continued vehicle use of 53 miles of roads and 115 miles of ways, and activity associated with energy and mineral exploration would cause short-term, local
impairment of opportunities for solitude. Development of eight open-pit mines would cause long-term, widespread loss of opportunities for solitude in the vicinity of these activities. Development of three underground mines would diminish opportunities for solitude on a long-term, localized basis. Range and wildlife development projects would temporarily disrupt solitude during construction and maintenance activities.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to the existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 53 miles of roads and 115 miles of ways in the WSAs.

Construction of 20 miles of fence would improve riparian vegetation and wildlife habitat along 80 miles of Whitehorse, Doolittle, McDermitt and Antelope Creeks. The improved habitat would enhance opportunities for viewing wildlife and provide a more natural recreational experience for visitors. Although development of one reservoir and two springs would slightly impair the natural, wild setting upon which primitive recreation depends, their overall impact would be to improve recreational opportunities. Development of these livestock projects would result in better distribution of livestock, reducing their impact in riparian areas and improving opportunities for recreation in a primitive setting.

Mineral exploration would involve the drilling of 335 core holes and trenches throughout the WSAs. Noise and visual distractions associated with these activities would cause local, short-term disturbance to primitive and unconfined recreation experiences.

Development of eight open-pit and three underground mines would compromise primitive and unconfined recreation opportunities by causing long-term surface disturbance of 2,680 acres.

**Special Features**

Continued motorized vehicle use on the roads and ways would maintain impacts on special features which include populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and *Collomia macrocalyx* (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations. These impacts include soil compaction and rutting of riparian areas which degrades habitat for plants and fish, minor seasonal disturbance of terrestrial wildlife, impairment of scenic vistas and possible destruction or damage to cultural sites.

Mineral exploration would result in a minimal short-term disturbance of terrestrial wildlife, but once exploration activities ceased, wildlife would re-occupy the sites. Mineral exploration might also disturb some cultural sites, however monitoring and mitigation would avoid or minimize impacts.

Development of eight open-pit and three underground mines would cause long-term displacement of terrestrial wildlife and when the mines are adjacent to creeks, erosion and seepage would degrade water quality and habitat for aquatic wildlife. Gold mines developed in close proximity to creeks containing resident populations of cutthroat trout may jeopardize those populations if water quality in the creek deteriorates as a result of mining activities. Monitoring and mitigation would either minimize or avoid impacts.

Construction of 20 miles of fences would have the same impact as the other alternatives: Riparian vegetation and wildlife habitat would improve along 80 miles of streams.

**Conclusion:** In the absence of wilderness designation, projected activities would directly impair wilderness values over approximately 26,530 acres (14 percent) of the five WSAs, with further declines from other projected uses over the long term.

**Impacts on Energy and Mineral Development**

All of the 185,395 acres of public land within the Trout Creek Group would be open to mineral exploration and development.

**Energy Development**

Exploration for uranium/thorium is expected to occur. The discovery of an economically-mineable deposit is not expected, and no development is projected. Due to lack of sufficient geologic evidence to support an extensive exploration/development program, only casual exploration (without development) is projected for geothermal resources.

**Conclusion:** There would be no impact to energy development.

**Mineral Development**

Projected exploration/development would occur for gold, silver, mercury, beryllium, lithium bentonite and zeolites. The projected development of 11 mines would occur.
Conclusion: Production of gold/silver/mercury from nine projected mines, lithium bentonite from one projected mine and zeolites from one projected mine would occur.

Impacts on Vegetation

Under the No Wilderness alternative, all WSAs would be subject to disturbance from mineral exploration and development, with greatest activity anticipated in the Disaster Peak WSA. Exploratory activity including 335 core holes and 37 trenches would remove vegetation on approximately 206 acres. Construction of 100 miles of access roads associated with the exploration, as well as the disturbed acres, would revegetate within three to five years assuming no further development occurs.

Long-term disturbance to vegetation is anticipated on 2,680 acres from development of eight open-pit mines and three underground mines. Twenty-four miles of road, which would be upgraded to provide access to the mines, would remain unvegetated due to continued use. The 53 miles of roads and 115 miles of ways also would not revegetate due to continued use. Approximately 25 miles of riparian habitat degradation is projected from mining developments.

As with all alternatives, construction of 50 pools in certain riparian areas would result in soil build-up as these natural rock and log structures trap sediments. A long-term increase in both herbaceous and woody vegetation would be anticipated along 3 miles of streams with the increased siltation and subsequent creation of more favorable habitats for colonization by riparian species.

Construction of 20 miles of fence would permit better control of livestock in all WSAs, resulting in improved vegetation conditions along approximately 80 miles of riparian and upland communities. Utilization levels on key forage species and timing of grazing use by livestock can be better controlled with additional fences, and the ecological condition would be allowed to advance toward the potential natural communities. Upland range bunchgrass cover would increase.

Construction of one reservoir under this alternative would remove five acres of vegetation and construction of two springs would remove vegetation on approximately one acre. Utilization of key forage species would increase in a vicinity of approximately 20 acres per reservoir and spring site, resulting in a more grazed appearance and a decrease in residual ground cover. Whether vigor or survival of the key forage species would be affected by increased grazing around these sites depends on season of use, with continued heavy use in the spring resulting in declining trends and a loss of individual plants. However, with the new fences described above, the reservoir and springs would aid in better distribution and management of livestock, resulting in a less grazed appearance at some sites as cattle use is spread over a larger area.

Conclusion: Long-term removal of vegetation would occur on 2,680 acres from projected mining developments. Riparian vegetation would be improved along 80 miles of streams. Development of range projects would improve livestock distribution and upland range condition.

Impacts on Wildlife

Activity related to projected mineral exploration would cause temporary wildlife displacement and habitat losses with construction of 100 miles of access roads and 206 acres of surface disturbance. The cumulative impact of exploration on big game habitat would be substantial in the Disaster Peak WSA where most exploration would occur. All wildlife species disturbed would re-occupy formerly-used areas after exploration activities ceased, habitat was rehabilitated and roads constructed for exploration were closed.

Activity related to mineral development would cause long-term habitat losses on 2,680 acres. During development activities, mule deer, bighorn sheep and some antelope would be displaced into adjoining suitable habitats due to direct habitat losses and disturbance by human activities. Direct mortalities and habitat losses to small terrestrial species such as lizards and snakes would eliminate or severely reduce local populations. Cutthroat trout populations could also be harmed if mine drainage leaks into streams. The projected impacts would occur mostly within the Disaster Peak WSA which would sustain the greatest degree of development.

Wildlife outside of mineral development areas would be managed to support existing wildlife populations in accordance with ODFW management goals. Adequate forage and cover would be provided in the preparation of livestock allotment management plan goals.

Construction of 50 pools in all but the Disaster Peak WSA would help to expand cutthroat trout populations by increasing the number of resting pools and rearing areas. Construction of 20 miles of livestock management fence would allow grazing use to continue with reduced impacts to wildlife forage and fish habitat. Fish populations would increase due to improved
watershed stability, increased amounts of woody riparian cover and improved water quality. More wildlife forage for big game would be available due to improved management and recovery of vegetation. Development of two springs and one reservoir would provide a very minor degree of habitat improvement for wildlife since water distribution in the area is already considered to be very good.

**Conclusion:** Mineral development would displace big game species and eliminate or reduce populations of some small terrestrial species on 2,680 acres. Trout populations may also be harmed if mines are developed adjacent to streams.

**Impacts on Watershed**

Under the No Wilderness Alternative, 206 acres and 2,680 acres of surface disturbance associated with mineral exploration and mineral development, respectively, would impair watershed condition. Construction of 100 miles of roads and upgrading 24 miles of roads, excavation of 335 exploratory core holes and 37 exploratory trenches, and development of eight open-pit and three underground mines would result in slope and stream bank instability, increased stream siltation and a change in timing of flows. Stream water chemistry, especially pH, could change significantly due to mining activities. Instream discharge would peak more quickly during spring runoff and storm events. Peak discharge would be higher and runoff events would be of shorter duration. Disturbance associated with mineral exploration would be short-term; however, 2,680 acres of surface disturbance associated with mineral development would cause long-term degradation on approximately 25 miles of perennial streams.

Construction of 50 strategically-located instream structures in all but the Disaster Peak WSA would improve stream conditions. Construction of 20 miles of pasture fencing would improve watershed condition through better livestock management by reducing the impact of grazing. The detrimental erosive effects resulting from a high utilization of riparian vegetation and trampling of banks by livestock would be alleviated, leading to bank stability. A grazing system that would allow rest and rotational grazing to occur would lead to improved riparian vegetation and upland conditions along 80 miles of perennial streams.

**Conclusion:** Watershed condition would be improved on 80 miles of streams through pool development and fence construction, and would be degraded on 25 miles of streams from projected mineral development.

**Impacts on Livestock Grazing**

Long-term surface disturbance of 2,680 acres due to mineral development would decrease the forage allocation to livestock by 223 AUMs to approximately 19,850 AUMs within the seven allotments in the five WSAs.

Vehicle use for livestock management and facility inspection/maintenance on 115 miles of ways and 53 miles of roads would continue.

A reservoir would be constructed in the Fifteenmile Creek WSA and two springs would be developed, one in the Twelvemile Creek WSA and one in the Willow Creek WSA, to improve livestock distribution.

Twenty miles of fence would be constructed in the WSAs (4 miles in Willow Creek, 2 miles in Disaster Peak, 7 miles in Fifteenmile Creek, 3 miles in Oregon Canyon and 4 miles in Twelvemile Creek) to improve riparian vegetation on 80 miles of streams through a change in grazing management.

**Conclusion:** Livestock use allocation would be reduced by approximately 223 AUMs to an overall use level of 19,850 AUMs due to mining activity. Construction of a reservoir and 20 miles of fence, and development of two springs would improve livestock distribution.

**Impacts on Recreation Use**

Motorized recreation use would continue on 53 miles of roads and 115 miles of ways. Vehicle access for day hikes into the canyons or along the escarpment and vehicle-oriented hunting and fishing would continue. Construction of 20 miles of fence and 50 pools in Whitehorse, Antelope and Doolittle Creeks would enhance recreational use by improving the naturalness and habitat quality of adjacent areas and expanding populations of trout, birds and deer.

Surface disturbance and disruption of wildlife from mineral exploration would cause short-term impairment of the natural setting for recreational activities, including hunting and fishing. Development of eight open-pit and three underground mines would displace wildlife, including "trophy" deer and could cause degradation of aquatic habitats, depending on their proximity to the mines. As a consequence, opportunities for recreation would be reduced.

Minor increases in vehicle-dependent activities would compensate for minor declines in primitive recreation opportunities resulting in little or no change in recreational use.
Conclusion: The area's recreation use level of approximately 6,000 visitor days per year would not be affected.

Impacts on Economic and Local Income

Livestock grazing would decrease by 223 AUMs. Projected energy and mineral development would amount to nine metallic mines and two non-metallic mines. Overall recreation use would remain at 6,000 visitor days per year.

Table 13 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net decrease of $2,676 per year. There would also be an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would decrease by approximately $3,000. There would also be an unknown level of increase attributable to the projected mineral development.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action, energy and mineral exploration on 180,440 acres and production of gold, silver, mercury, lithium and zeolites from 10 mines would be foregone. In addition, the closure of 53 miles of roads and 109 miles of ways would add to livestock operators' expenses and restrict recreational opportunities for people who prefer to use motorized vehicles. Improved livestock distribution from one reservoir and two springs would also be foregone.

On the 10,145-acre nonsuitable portion, projected mineral and range development activities would lead to unavoidable adverse impacts to wilderness values as a result of 800 acres of surface disturbance, which would visually influence approximately 3,900 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue in the suitable area, with some added minor inconvenience and expense to livestock operators resulting from the exclusion of motorized vehicles for day-to-day inspection activities. The long-term productivity of the wilderness values would be preserved on 180,440 acres. On 10,145 acres recommended nonsuitable, long-term productivity of wilderness values would be directly lost on approximately 800 acres with surface disturbance from projected mining and range developments.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of wilderness resource or any other resource on 180,440 acres designated suitable as wilderness. On 10,145 acres designated nonsuitable, projected mineral development would result in an irreversible commitment of the wilderness resource on approximately 800 acres, as well as an irretrievable commitment of the mineral resource. Reservoir and spring development would reduce wilderness values on an additional four acres.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The two combined areas (Willow Creek/Disaster Peak combination and Twelvemile Creek/Fifteenmile Creek/Oregon Canyon combination) defined under the Proposed Action are manageable as wilderness because they possess a high degree of naturalness and are large enough to provide a large core area to ensure the availability of wilderness values. Manageability would be improved by acquisition of private inholdings and mineral estate of the split-estate lands, and closing the boundary roads between the Willow Creek and Disaster Peak WSAs, and the Twelvemile Creek, Fifteenmile Creek and Oregon Canyon WSAs to form a composite wilderness area. The acquisitions would prevent adverse effects from access to, and incompatible surface disturbance on, these parcels.

The addition of 1,230 acres to the Twelvemile Creek, Fifteenmile Creek and Disaster Peak WSAs would improve manageability as wilderness by adjusting the
boundary to more easily-defined locations (i.e. the escarpment rim in the east and a boundary road in the west).

In response to public comments received by BLM, we have added three areas to the acres recommended suitable for wilderness. These include: 1) the western portion of the Willow Creek WSA, 2) Sherman Field and the area to the west in the Disaster Peak WSA and 3) the portion of the WSA below the escarpment in the Oregon Canyon WSA. The area in the Willow Creek WSA was added to protect the Willow/Whitehorse cutthroat trout population in Willow Creek and to acquire the private inholdings scattered throughout the area. The area in the Disaster Peak WSA was added to improve the configuration of the WSA. The area in the Oregon Canyon WSA was added because interference from outside sights and sounds is not a valid reason to exclude an area from wilderness designation and because the area possesses outstanding wilderness values. All three of these additions would also enhance manageability of the wilderness area.

Two features that detract from manageability are: 1) the narrow configuration of two boundary projections in the southern portion of the Disaster Peak WSA and 2) the road running along the boundary between the Willow Creek and Fifteenmile Creek WSAs which would constitute a thoroughfare for motorized vehicles and decrease wilderness values in that area.

The area could be managed as wilderness under the all wilderness alternative, but the potential for exploration and development of the private and split-estate inholdings could result in conflicts that would be difficult to resolve. Under the enhanced alternative, potential uranium deposits in the eastern portion of the Disaster Peak WSA would be unavailable for development. In addition, the narrow configuration of the southern-most extension of the Disaster Peak WSA and the northern-most extension of the Willow Creek WSA would be difficult to manage.

Rationale for Selection of the Proposed Action

The proposed action was selected because of the major benefits of preserving the area’s wilderness values, including undeveloped canyons, populations of Willow/Whitehorse and Lahontan cutthroat trout, Lahontan redside shiner and Collomia macrocalyx (bristle-flowered Collomia); habitat for mule deer, sage grouse, bighorn sheep, cougar and bobcat; cultural sites; and outstanding ecological diversity, scenery and geologic formations.

Adding 1,230 acres to the composite area recommended suitable for wilderness would enhance wilderness values by providing a more identifiable and manageable boundary.

The 10,145 acres recommended nonsuitable as wilderness are areas that have a poor configuration or fall within an Area of Critical Mineral Potential (e.g. the eastern portion of the Disaster Peak WSA).

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: A greater variety of alternatives should have been analyzed, specifically combining the Trout Creek Mountain group WSA with the Mahogany Ridge WSA (OR-2-77). Response: The boundary road between the Trout Creek Mountain group and the Mahogany Ridge WSA provides access for public and BLM use and must remain open for this reason. Refer to Section 2, Description of the Alternatives, specifically the discussion of alternatives considered but not analyzed.

Comment: The wildlife analysis fails to adequately discuss nongame species. Response: Section 3, Affected Environment regarding Wildlife has been expanded to provide information on nongame species.

Comment: The group of WSAs contain outstanding reptile populations, yet they are not mentioned as a special feature. Response: Relative to several other WSAs, the reptile populations of the Trout Creek Mountains are not outstanding or noteworthy, in part due to the high elevations and cool temperatures within the WSAs.
Comment: The wilderness boundary for the proposed action should be extended to the west of Willow Creek in order to protect the watershed and the Willow/Whitehorse cutthroat trout population. Response: The boundaries of the proposed action have been changed since the DEIS to include all of the western portion of the Willow Creek WSA, thus a large portion of the Willow Creek watershed is now included in the proposed action.

Comment: Information on mineral deposits does not address private claims and collecting of siliceous deposits by rock hounds. Response: Wilderness designation would not preclude extraction of minerals from any mining claim with established valid existing rights. Rock hounding would also be permitted as long as it did not occur on an established mining claim belonging to a second party, did not cause unnecessary permanent degradation and was not used for commercial or industrial purposes, sale or barter.

Comment: Intrusion of outside sights and sounds is not a valid reason for recommending the eastern portion of the Oregon Canyon WSA nonsuitable as wilderness. Response: The boundaries of the proposed action have been changed since the DEIS to include all of the Oregon Canyon WSA.
<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>185,395</td>
<td>186,625</td>
<td>176,480</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation¹</td>
<td>185,395</td>
<td>186,625</td>
<td>176,480</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>53</td>
<td>34.5</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>115</td>
<td>115</td>
<td>109</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired²</td>
<td>0</td>
<td>3,960</td>
<td>3,960</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired³</td>
<td>0</td>
<td>10,295</td>
<td>9,465</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>175,200</td>
<td>176,330</td>
<td>167,015</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Decreased Forage Allocation to Livestock</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>223</td>
</tr>
<tr>
<td>Structural Livestock Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fences (miles)</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Reservoirs (number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Springs (number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

¹Except for 53 miles of roads and 115 miles of ways in the WSA, most of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
²Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use and withdrawn from mineral location and leasing.
³Upon acquisition of the mineral estate, these lands would be withdrawn from mineral location and leasing.
Table 2. Summary of Environmental Consequences of Alternatives, Trout Creek Combinations WSA (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire area in each of the five WSAs would protect and enhance existing wilderness values on 185,395 acres.</td>
<td>Closing of the roads between the WSAs, combining the entire areas of the five WSAs into a single wilderness area and designating 190,585 acres as wilderness would protect and enhance existing wilderness values. The acquisition of 10,275 acres of mineral estate would further protect wilderness values.</td>
<td>Wilderness designation of 180,440 acres would protect and enhance existing wilderness values. Acquisition of 9,445 acres of mineral estate would further protect wilderness values. On the 10,145 acres designated nonsuitable for wilderness, projected activities would directly impair wilderness values on approximately 3,900 acres (2 percent) of the five WSAs with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 26,530 acres (14 percent of the five WSAs) with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy development is expected, since none is projected. Production of gold, silver and mercury from nine projected mines, bentonite from one projected mine and zeolites from one projected mine would be foregone.</td>
<td>No impact to energy development is expected, since none is projected. Production of gold/silver/mercury from eight projected mines, bentonite from one projected mine and zeolites from one projected mine would be foregone.</td>
<td>No impact to energy development is expected, since none is projected. Production of gold/silver/mercury from nine projected mines, bentonite from one projected mine and zeolites from one projected mine would occur.</td>
<td>There would be no impact to energy development. Production of gold/silver/mercury from mine projects, bentonite from one projected mine and zeolites from one projected mine would occur.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>A total of 115 miles of closed ways would revegetate in 3 to 5 years. Riparian vegetation would be improved on approximately 80 miles of streams. Upland range conditions would improve.</td>
<td>The 53 miles of roads and 115 miles of ways would revegetate. Riparian vegetation would be improved on approximately 80 miles of streams. Upland range condition would improve.</td>
<td>In the suitable area, revegetation would occur on 34.5 miles of roads and 109 miles of ways. Riparian vegetation would be improved along 3 miles of streams. Upland range condition would improve.</td>
<td>Long-term removal of vegetation would occur on 2,680 acres. Fifty-three miles of roads and 115 miles of ways would not revegetate. Riparian vegetation would be improved along 3 miles of streams. Development of range projects would remove vegetation on 4 acres. Upland range condition would improve.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 185,395 acres.</td>
<td>Wildlife habitat and populations would be maintained on 186,025 acres.</td>
<td>In the suitable area, wildlife habitat and populations would be maintained on 176,490 acres. In the nonsuitable area, wildlife habitat and populations would be lost on 800 acres. A population of Lahontan cutthroat trout may be harmed.</td>
<td>Mineral development would displace big game species including mule deer, bighorn sheep and antelope, and eliminate or reduce populations of some small terrestrial species on 2,680 acres. A population of Lahontan cutthroat trout may be harmed.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Watershed condition would improve on 80 miles of perennial streams.</td>
<td>Watershed condition would improve on approximately 80 miles of perennial streams.</td>
<td>Watershed condition would improve on 80 miles of streams in the suitable portion. In the nonsuitable portion, projected mine development would degrade watershed conditions on 3 miles of streams.</td>
<td>Watershed condition would be improved on 80 miles of streams through pool development and fence construction, and would be degraded on 25 miles of streams from projected mineral development.</td>
</tr>
</tbody>
</table>
Table 2. Summary of Environmental Consequences of Alternatives, Trout Creek Combinations WSA (OR-3-152, 153, 156, 157, 162) (continued)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Livestock Grazing</strong></td>
<td>Livestock use would remain at 20,073 AUMs. The use of 115 miles of roads and 115 miles of ways for day to day livestock management would be precluded. Construction of one reservoir and two springs would be foregone.</td>
<td>Livestock use would remain at 20,073 AUMs.</td>
<td>Livestock use would remain at 20,073 AUMs. The use of 54 5 miles of roads and 109 miles of ways for day to day livestock management would be precluded. Construction of one reservoir and two springs would be foregone.</td>
<td>Livestock use allocation would be reduced by approximately 223 AUMs to an overall use level of 19,850 AUMs. Construction of a reservoir and two springs would occur.</td>
</tr>
<tr>
<td><strong>Recreation Use</strong></td>
<td>The area’s recreation use level of approximately 6,000 visitor days per year would not be affected. Wilderness designation would result in a change to primitive, non-motorized types of recreation use.</td>
<td>The area’s recreation use level of approximately 6,000 visitor days per year would not be affected. Wilderness designation would result in a change to primitive, non-motorized types of recreation use.</td>
<td>The area’s recreation use level of approximately 6,000 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of approximately 6,000 visitor days per year would not be affected.</td>
</tr>
<tr>
<td><strong>Local Personal Income</strong></td>
<td>Annual local personal income would remain at approximately $313,000.</td>
<td>Annual local personal income would remain at approximately $313,000.</td>
<td>Annual local personal income would remain at approximately $313,000. There would also be an unknown level of increase attributable to the projected mineral development.</td>
<td>Annual local personal income would decrease by approximately $3,000. There would also be an unknown level of increase attributable to the projected mineral development.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Trout Creek Mountains Group WSA (OR-3-152, 153, 156, 157 and 162)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Part of 3-152, 3-156, 3-162</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Silver</td>
<td>Rest of 3-152, 3-153, 3-156</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Mercury</td>
<td>3-152, parts of 3-153, 3-156, 3-157, 3-162</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-156</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-153, Rest of 3-157, Rest of 3-162</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Gold</td>
<td>Part of 3-153</td>
<td>H</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Part of 3-153, part of 3-157, 3-162</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-153, rest of 3-157, 3-152, 3-156</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Beryllium</td>
<td>Part of 3-153</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-153, 3-152, 3-156, 3-162</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>3-152</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Tin</td>
<td>Entire Area (5 WSAs)</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire Area (all 5 WSAs)</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Parts of 3-153, 3-156, 3-157, and 3-162</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>3-152, rest of 3-153, 3-157, and 3-162</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Lithium Bentonite/Zeolites</td>
<td>Part of 3-153</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Rest of 3-153, 3-152, 3-156, 3-157, 3-162</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Diatomites</td>
<td>Entire Area (All 5 WSAs)</td>
<td>L</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence
Table 4. Acres Open to Exploration and Development, or Acquired Private Land/Mineral Estate Closed to Mineral Entry, Under the All and Enhanced Wilderness Alternatives, respectively. Trout Creek Group of WSAs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Creek (OR-3-152)</td>
<td>28,810</td>
<td>1,755 (Split-Estate) 2,040 (Private Land)</td>
<td>1,755 (Split-Estate) 2,040 (Private Land)</td>
<td>32,605</td>
</tr>
<tr>
<td>Disaster Peak (OR-3-153/NV-020-859)</td>
<td>30,490</td>
<td>1,550 (Split-Estate) 1,280 (Private Land)</td>
<td>1,550 (Split-Estate) 1,280 (Private Land)</td>
<td>33,320</td>
</tr>
<tr>
<td>Fifteenmile Creek (OR-3-156)</td>
<td>48,540</td>
<td>2,750 (Split-Estate) 200 (Private Land)</td>
<td>2,750 (Split-Estate) 200 (Private Land)</td>
<td>51,490</td>
</tr>
<tr>
<td>Oregon Canyon (OR-3-157)</td>
<td>40,400</td>
<td>2,500 (Split-Estate) 40 (Private Land)</td>
<td>2,500 (Split-Estate) 40 (Private Land)</td>
<td>42,940</td>
</tr>
<tr>
<td>Twelvemile Creek (OR-3-162)</td>
<td>26,960</td>
<td>1,640 (Split-Estate) 400 (Private Land)</td>
<td>1,640 (Split-Estate) 0 (Private Land)</td>
<td>29,000</td>
</tr>
<tr>
<td>Non-WSA Land</td>
<td>1,130</td>
<td></td>
<td>100 (Split-Estate)</td>
<td>1,230</td>
</tr>
<tr>
<td>TOTAL</td>
<td>176,330</td>
<td>10,195 (Split-Estate) 3,960 (Private Land)</td>
<td>10,295 (Split-Estate) 3,960 (Private Land)</td>
<td>190,585</td>
</tr>
</tbody>
</table>

Table 5: Energy and Mineral Resources with High and Moderate Potential for Occurrence (In Acres) in Trout Creek Group of WSAs

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Potential</th>
<th>Willow Creek WSA OR-3-152</th>
<th>Disaster Peak WSA OR-3-153/NV-020-859</th>
<th>Fifteenmile Creek WSA OR-3-156</th>
<th>Oregon Canyon WSA OR-3-157</th>
<th>Twelvemile Creek WSA OR-3-162</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>High</td>
<td>N/A</td>
<td>9,000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>N/A</td>
<td>6,840</td>
<td>N/A</td>
<td>425</td>
<td>28,960</td>
<td>36,225</td>
</tr>
<tr>
<td>Silver</td>
<td>Moderate</td>
<td>8,980</td>
<td>N/A</td>
<td>2,750</td>
<td>N/A</td>
<td>28,960</td>
<td>40,690</td>
</tr>
<tr>
<td>Mercury</td>
<td>Moderate</td>
<td>31,325</td>
<td>6,300</td>
<td>330</td>
<td>16,100</td>
<td>360</td>
<td>54,415</td>
</tr>
<tr>
<td>Beryllium</td>
<td>Moderate</td>
<td>N/A</td>
<td>11,020</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>11,020</td>
</tr>
<tr>
<td>Lithium Bentonite and Zeolites</td>
<td>Moderate</td>
<td>N/A</td>
<td>8,100</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>8,100</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Moderate</td>
<td>5,900</td>
<td>6,600</td>
<td>7,500</td>
<td>9,000</td>
<td>N/A</td>
<td>29,000</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Moderate</td>
<td>31,445</td>
<td>32,080</td>
<td>51,490</td>
<td>42,900</td>
<td>28,960</td>
<td>186,875</td>
</tr>
</tbody>
</table>

*N/A = Not applicable (resources with low potential for occurrence in the WSA)
### Table 6. Acres Closed to Mineral Entry in the Trout Creek Group of WSAs - Proposed Action

<table>
<thead>
<tr>
<th>WSA</th>
<th>Public Land</th>
<th>Non-Federal Land Acquired</th>
<th>Total Land</th>
<th>Acres Open to Mineral Entry and Mineral Exploration/Development (Nonsuitable For Wilderness)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Non-Federal Public Land</td>
</tr>
<tr>
<td>Willow Creek (OR-3-152)</td>
<td>24,575</td>
<td>1,585 (Split-Estate)</td>
<td>28,200</td>
<td>4,235</td>
</tr>
<tr>
<td>Disaster Peak (OR-3-153/NV-020-859)</td>
<td>28,290</td>
<td>1,350 (Split-Estate)</td>
<td>30,640</td>
<td>2,200</td>
</tr>
<tr>
<td>Fifteenmile Creek (OR-3-156)</td>
<td>48,540</td>
<td>2,750 (Split-Estate)</td>
<td>51,290</td>
<td>0</td>
</tr>
<tr>
<td>Oregon Canyon (OR-3-157)</td>
<td>40,400</td>
<td>2,500 (Split-Estate)</td>
<td>42,900</td>
<td>0</td>
</tr>
<tr>
<td>Twelvemile Creek (OR-3-162)</td>
<td>24,080</td>
<td>1,180 (Split-Estate)</td>
<td>25,260</td>
<td>2,880</td>
</tr>
<tr>
<td>Non-WSA Land</td>
<td>1,130</td>
<td>100 (Split-Estate)</td>
<td>1,230</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>167,015</td>
<td>9,465 (Split-Estate)</td>
<td>180,440</td>
<td>9,315</td>
</tr>
</tbody>
</table>

### Table 7. Existing Livestock Use, Trout Creek Mountains Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Creek WSA</td>
<td>26,655</td>
<td>04/01-10/15</td>
<td>1</td>
<td>710</td>
</tr>
<tr>
<td>Fifteenmile (1201)</td>
<td>5,312</td>
<td>04/01-09/30</td>
<td>26</td>
<td>2,886</td>
</tr>
<tr>
<td>Trout Creek Mtn (6015)</td>
<td>14,357</td>
<td>07/01-09/30</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>3,896</td>
</tr>
<tr>
<td>Disaster Peak WSA</td>
<td>25,118</td>
<td>04/01-10/15</td>
<td>1</td>
<td>2,464</td>
</tr>
<tr>
<td>Willow Creek (1204)</td>
<td>5,030</td>
<td>04/01-09/30</td>
<td>4</td>
<td>804</td>
</tr>
<tr>
<td>Zimmermann (1203)</td>
<td>7,342</td>
<td>03/01-08/10</td>
<td>25</td>
<td>1,600</td>
</tr>
<tr>
<td>Trout Creek Mtn (6015)</td>
<td>14,357</td>
<td>07/01-09/30</td>
<td>2</td>
<td>200</td>
</tr>
<tr>
<td>King River (0048)</td>
<td>15,575</td>
<td>06/01-09/30</td>
<td>5</td>
<td>800</td>
</tr>
<tr>
<td>Horse Creek (0049)</td>
<td>4,449</td>
<td>06/01-09/14</td>
<td>9</td>
<td>400</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>6,268</td>
</tr>
<tr>
<td>Fifteenmile Creek WSA</td>
<td>25,118</td>
<td>04/01-10/15</td>
<td>11</td>
<td>4,892</td>
</tr>
<tr>
<td>McCormick (1202)</td>
<td>8,862</td>
<td>03/16-10/15</td>
<td>3</td>
<td>334</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>5,226</td>
</tr>
<tr>
<td>Oregon Canyon WSA</td>
<td>25,118</td>
<td>04/01-10/15</td>
<td>7</td>
<td>1,389</td>
</tr>
<tr>
<td>McCormick (1202)</td>
<td>8,594</td>
<td>03/16-10/15</td>
<td>26</td>
<td>1,212</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>2,601</td>
</tr>
<tr>
<td>Twelvemile Creek WSA</td>
<td>25,118</td>
<td>04/01-10/15</td>
<td>7</td>
<td>2,082</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>2,082</td>
</tr>
<tr>
<td>Total all WSAs</td>
<td></td>
<td></td>
<td></td>
<td>20,073</td>
</tr>
</tbody>
</table>

*Licensed AUMs have changed due to acquisition of state lands. AUMs previously authorized on state land as exchange of use are now authorized under BLM permit. Total livestock numbers have not changed.*
Table 8. Unnatural Features and Percent of WSAs Influenced\(^1\), Trout Creek Mountains Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>Type</th>
<th>Willow Creek WSA (3-152)</th>
<th>Disaster Peak WSA (3-153)</th>
<th>Fifteenmile Creek WSA (3-156)</th>
<th>Oregon Canyon WSA (3-157)</th>
<th>Twelvemile Creek WSA (3-162)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ways - number (miles)</td>
<td>9</td>
<td>16</td>
<td>16</td>
<td>8</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td>Stock Water Projects</td>
<td>1</td>
<td>7</td>
<td>28</td>
<td>5</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td>Fences</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Exclosures/Corrals</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Structures</td>
<td>0</td>
<td>2(^2)</td>
<td>1(^3)</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total Developments</td>
<td>21</td>
<td>31</td>
<td>53</td>
<td>20</td>
<td>20</td>
<td>145</td>
</tr>
<tr>
<td>Influenced Portion of WSA (^3)</td>
<td>24%</td>
<td>26%</td>
<td>7%</td>
<td>9%</td>
<td>7%</td>
<td>14%</td>
</tr>
<tr>
<td>Total Acres in WSA</td>
<td>28,810</td>
<td>30,490</td>
<td>48,460</td>
<td>40,400</td>
<td>26,960</td>
<td>175,120</td>
</tr>
</tbody>
</table>

\(^1\)The area of influence is an estimate of the acreage within the WSA from which the unnatural features can be seen.

\(^2\)One snow measurement station near Peak Canyon and one cabin located in northeast corner of WSA.

\(^3\)Buildings, corrals, and dump collectively referred to as Doolittle Cow Camp.

\(^4\)An abandoned irrigation ditch.

\(^5\)This figure has been corrected for overlapping influenced areas; i.e., an area influenced by one or more imprints is counted only once.

---

Table 9. Outstanding Primitive Recreation Opportunities, Trout Creek Mountains Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>Primitive Recreation Opportunity</th>
<th>Willow Creek (3-152)</th>
<th>Disaster Peak (3-153)</th>
<th>Fifteenmile Creek (3-156)</th>
<th>Oregon Canyon (3-157)</th>
<th>Twelvemile Creek (3-162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day hiking</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Backpacking</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Camping</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hunting</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Photography</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bird Watching</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fishing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Winter Sports</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

(X denotes opportunity is available)
Table 10. Oregon Natural Heritage Plan Plant Communities Found in the Trout Creek Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>ONHP Plant Community</th>
<th>Willow Creek (3-152)</th>
<th>Disaster Peak (3-153)</th>
<th>Fifteenmile Creek (3-156)</th>
<th>Oregon Canyon (3-157)</th>
<th>Twelvemile Creek (3-162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Sagebrush/Idaho Fescue</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Low Sagebrush/Bluebunch Wheatgrass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Low Sagebrush/Sandberg's Bluegrass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Big Sagebrush/Bluebunch Wheatgrass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Big Sagebrush/Idaho Fescue</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Shadscale/Spiny Hopsage/Bud Sage Complex</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

(X denotes plant community occurs)

Table 11. Plant Communities and the Overall Ecological Status of the Trout Creek Mountains Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>Vegetative Community</th>
<th>Percent of WSA Containing Specified Community</th>
<th>Willow Creek (3-152) WSA</th>
<th>Disaster Peak (3-153) WSA</th>
<th>Fifteenmile Creek (3-156) WSA</th>
<th>Oregon Canyon (3-157) WSA</th>
<th>Twelvemile Creek (3-162) WSA</th>
<th>Total for All 5 WSA’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming Big Sagebrush/Bluebunch Wheatgrass</td>
<td>23</td>
<td>17</td>
<td>35</td>
<td>15</td>
<td>20</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Wyoming Big Sagebrush/Idaho Fescue</td>
<td>15</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>18</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Wyoming Big Sagebrush/Squirreltail</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Wyoming Big Sagebrush/Thurber’s Needlegrass</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basin Big Sagebrush/Giant Wildrye</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Low Sagebrush/Bluebunch Wheatgrass</td>
<td>10</td>
<td>14</td>
<td>10</td>
<td>30</td>
<td>15</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Low Sagebrush/Idaho Fescue</td>
<td>33</td>
<td>11</td>
<td>30</td>
<td>42</td>
<td>40</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Low Sagebrush/Sandberg's Bluegrass</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mountain Big Sagebrush/Idaho Fescue</td>
<td>5</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mountain Mahogany/Idaho Fescue</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Shadscale/Indian Ricegrass</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Percent of WSA Exhibiting Specified Ecological Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Seral</td>
<td>17</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Middle Seral</td>
<td>79</td>
<td>69</td>
<td>85</td>
<td>33</td>
<td>60</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Late Seral &amp; PNC</td>
<td>4</td>
<td>30</td>
<td>10</td>
<td>57</td>
<td>40</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

1Summation may not equal 100 due to rounding.
2Seral refers to a stage of ecological condition based on the difference between the present plant community and the potential natural community (PNC), which is the relatively stable, final stage in plant succession.
### Table 12. Important Fisheries By Drainage In the Trout Creek Group (OR-3-152, 153, 156, 157, 162)

<table>
<thead>
<tr>
<th>WSA</th>
<th>Stream</th>
<th>Fish Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-152</td>
<td>Willow Creek</td>
<td>Willow/Whitehorse cutthroat(^1)</td>
</tr>
<tr>
<td></td>
<td>Little Whitehorse</td>
<td>Willow/Whitehorse cutthroat(^1)</td>
</tr>
<tr>
<td>3-153</td>
<td>Kings River</td>
<td>Rainbow trout hybrid</td>
</tr>
<tr>
<td></td>
<td>McDermitt Creek</td>
<td>Brown trout</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brook trout</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rainbow trout hybrid</td>
</tr>
<tr>
<td></td>
<td>Sage Creek</td>
<td>Lahontan cutthroat trout(^1)</td>
</tr>
<tr>
<td></td>
<td>Line Canyon</td>
<td>Lahontan cutthroat trout(^1)</td>
</tr>
<tr>
<td>3-156</td>
<td>Fifteenmile Creek</td>
<td>Willow/Whitehorse cutthroat(^1)</td>
</tr>
<tr>
<td></td>
<td>Whitehorse Creek</td>
<td>Willow/Whitehorse cutthroat(^1)</td>
</tr>
<tr>
<td>3-157</td>
<td>Oregon Canyon</td>
<td>Rainbow trout hybrid</td>
</tr>
<tr>
<td>3-162</td>
<td>Antelope Creek</td>
<td>Willow/Whitehorse cutthroat(^1)</td>
</tr>
</tbody>
</table>

\(^1\)The taxonomic status of the cutthroat species included in this area is currently unresolved.

### Table 13. Effects of Alternatives on Local Personal Income for the Willow Creek, Disaster Peak, Fifteenmile Creek, Oregon Canyon and Twelvemile Creek WSAs (OR-3-152,153,156,157,162) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
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Livestock Grazing $ 0 0 0 -2,676
Energy & Mineral Development:
Metallic Mines $ 0 0 Unknown Unknown
Non-Metallic Mines $ 0 0 0 Unknown
Total $ 0 0 0 -2,676
LAND OWNERSHIP

- BLM Land Studied Under Section 202 of FLPMA (Other BLM Land in WSA Studied Under Section 603 of FLPMA)
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- Private
- BLM Surface-State or Private Subsurface (Split Estate)
- * * * Whitehorse Basin ACEC
- Area of Critical Mineral Potential (ACMP)

Willow Creek WSA OR-3-152
Disaster Peak WSA OR-3-153
Fifteenmile Creek WSA OR-3-156
Oregon Canyon WSA OR-3-157
Twelvemile Creek WSA OR-3-162
Willow Creek WSA, OR-3-152. South-central portion of the WSA looking north down Little Whitehorse Creek toward Whitehorse Butte. Within area recommended suitable under the proposed action alternative. September 1983.

Williw Creek WSA, OR-3-152. South-central portion of the WSA looking west toward the headwaters of Little Whitehorse Creek. Within the area recommended suitable under the proposed action alternative. September 1983.
Disaster Peak WSA, OR-3-153. Northeastern portion of the WSA looking southwest. Within area recommended suitable under the proposed action alternative. Disaster Peak is on the horizon center, the South Fork of McDermitt Creek cuts across the far right and the North Fork of McDermitt Creek cuts across the mid-ground of the photo. September 1983.

Disaster Peak WSA, OR-3-153. South-central portion of the WSA on the Nevada side looking west across “The Granites.” Within area recommended suitable under the proposed action alternative. Note the dead-end road at the foot of the ridge at left center. September 1983.
Disaster Peak WSA, OR-3-153. North-central portion of the WSA looking west at the headwaters of North Fork of McDermitt Creek. Within area recommended suitable under the proposed action alternative. September 1983.

Fifteen Creek WSA, OR-3-156. South-central portion of WSA looking south up Fifteenmile Creek. Within area recommended suitable under the proposed action alternative. Way barely visible at bottom of drainage. September 1983.
Fifteenmile Creek WSA, OR-3-156. South-central portion of WSA looking south. Within area recommended suitable under the proposed action alternative. Shows beaver ponds along creek. September 1983.

Fifteenmile Creek WSA, OR-3-156. North-central portion of WSA looking west down Little Whitehorse Creek Canyon. Within area recommended suitable under the proposed action alternative. September 1983.
Oregon Canyon WSA, OR-3-157. Northwest portion of WSA looking south. Within area recommended suitable under the proposed action alternative. The East fork of Oregon Canyon is on the left and the West Fork is on the right. September 1983.

Oregon Canyon WSA, OR-3-157. Southeastern boundary looking west up Angle Canyon. Within area recommended nonsuitable under the proposed action alternative. September 1983.
Twelvemile Creek WSA, OR-3-162. Central portion of the WSA looking north up Dry Creek Canyon. Within area recommended suitable under the proposed action alternative. September 1983.

Twelvemile Creek WSA, OR-3-162. Southwestern portion of the WSA looking north toward the central portion of the WSA. Within area recommended suitable under the proposed action alternative. Dry Creek is on the right and Twelvemile Creek is on the left. Coyote Lake outside the WSA, a playa near the Alvord Desert, is visible at the upper left. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Upper West Little Owyhee Wilderness Study Area (OR-3-173)

1. Introduction

General Description of the Study Area

The Upper West Little Owyhee Wilderness Study Area (WSA) is located in Malheur County, approximately 80 miles south of Jordan Valley and 10 miles northeast of McDermitt, Nevada. U.S. Highway 95 lies 10 miles west of the WSA (see Map 1).

The WSA contains 62,500 acres of public land (see Map 2). Seven parcels totaling 3,840 acres of split-estate lands are scattered throughout the WSA. In addition, 160 acres of private land are located at the end of a dead-end road in the southwest corner of the WSA.

The study area is approximately 14 miles long north to south and is as wide as 11 miles east to west in the southern portion. The boundary of the WSA consists of high standard dirt roads, one parcel of private land, a fence and the boundary of the McDermitt Indian Reservation. Two 1-mile long, dead-end low standard dirt roads enter the WSA, forming part of the boundary. One goes to a cow camp at Bell Spring along the northeastern boundary and the other goes to a cow camp on the private holdings.

The WSA contains level to rolling sagelands deeply cut by two major canyons — West Little Owyhee and Antelope. Antelope Creek flows northerly about 13 miles through the northwest part of the WSA. Much of the canyon is lined by 50-to 100-foot-high rimrock of a reddish-gray color. West Little Owyhee River flows easterly about 18 miles through the southern portion. The lower 9 miles are dominated by vertical cliffs and outcroppings that rise several hundred feet above the river bed and in places channel the stream through very narrow gaps. During the dry summer season, the water in the canyon recedes and is concentrated in deep, clear, cool pools in the narrow canyon segments.

Massie Canyon, a tributary to the West Little Owyhee, flows easterly for 7 miles and joins the main canyon 1.5 miles upstream from Anderson Crossing, the point at which the West Little Owyhee River leaves the WSA. It is similar to the lower portion of West Little Owyhee Canyon, containing short stretches of narrow vertical canyon walls. Jeffs Reservoir, located within Massie Canyon, is stocked annually with trout and can be reached by a way.

Sagebrush and grasses are the dominant plants in the WSA. Sedges, rushes and isolated pockets of aspen grow in riparian zones and patches of mountain mahogany occur on a few of the canyon rims.

Interrelationships

The WSA is part of a chain containing eight other WSAs that extends nearly 160 miles along the Owyhee River drainages, from the Nevada/Idaho border to Rome, Oregon. Descriptions and analyses of alternatives for these WSAs are included in the Draft Owyhee Canyonlands Wilderness Environmental Impact Statement which was issued by BLM’s Boise District Office in March 1984. The final EIS is expected to be released in 1989.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Whitehorse Wildlife Unit which contains 4,682-square-miles of land area. The WSA supports summer populations of approximately 150 mule deer and 350 pronghorn antelope. ODFW manages the Whitehorse unit to produce 20 bucks per 100 does of antelope and 30 bucks per 100 does of mule deer. The largest concentrations of sage grouse and white-tail jackrabbits in Malheur County are contained in the WSA. The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.
In 1988, 18 miles of the Owyhee River within the WSA was designated as a wild river component of the National Wild and Scenic River system. The Federal designation withdraws from mineral location and leasing all Federal minerals within 0.25 miles on either side of the river (approximately 5,420 acres within the WSA). Federal designation does not restrict mineral development of the 340 acres of split-estate lands within the river corridor.

Malheur County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on the area's wilderness values,
- impact on the 160-acre private inholding (the effects of wilderness designation on private lands are addressed in the Statewide EIS volume),
- impact on vehicle access to Jeffs Reservoir,
- impact on projected forage allocation increase for livestock,
- impact on use of two interior dead-end roads,
- impact on energy and mineral exploration and development,
- impact on vegetation,
- impact on mule deer, antelope, sage grouse, raptors, fish and nongame species,
- impact on watershed, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness (proposed action)
- no wilderness/no action

A partial alternative is not analyzed because there are no major resource conflicts that would warrant recommending only a part of the WSA as suitable for wilderness. The enhanced alternative does not include an analysis of closing the boundary road and combining this WSA with the Owyhee River complex because the road is a high standard major use road providing primary access to a large portion of southeast Malheur County.

All Wilderness

Under the all wilderness alternative, 62,500 acres of public land would be recommended suitable as wilderness (see Map 2). For purposes of analysis, this alternative assumes the private inholding and the mineral estate of the split-estate lands would not be acquired and the dead-end roads would remain open.

Energy and Mineral Development Actions

Wilderness designation would close 53,240 acres within the WSA to mineral entry (an additional 5,420 acres of public lands along the Owyhee River, which are part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action). A total of 3,840 acres of split-estate land would be open to mineral exploration and development. In addition, a 160-acre private inholding would remain open to mineral exploration and development at the landowner's discretion. Exploration for oil and gas, geothermal, Bentonite and zeolites would be prohibited on 53,240 acres (an
additional 5,420 acres are already closed due to Wild and Scenic River designation. Due to a lack of geologic evidence, no known petroleum- or geothermal-bearing formations, a thick volcanic covering on the surface and the absence of any existing mineral leases, only casual exploration for oil and gas and geothermal resources is postulated on the 4,000 acres of private and split-estate lands. Based on field samples, a lack of direct evidence indicating favorability, no known deposits and no mining claims, only casual exploration for mineral resources is also postulated on the private and split-estate lands.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 3,266 AUMs within the portions of three allotments in the WSA. The season of use would remain as identified in Table 4 for the three allotments. Ten miles of riparian fence would be constructed, resulting in riparian protection for 5 miles of stream. Vehicle use for livestock management on 16 miles of ways would be precluded. Management of livestock and maintenance of 10 miles of fences, seven springs and a corral would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs and a mile of pipeline.

Recreation Management Actions

The entire 62,500 acres (excluding the two dead-end roads) would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to the 2 miles of existing roads and 16 miles of existing ways. Current recreational use is estimated to be less than 300 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing roads and ways.

Enhanced Wilderness (Proposed Action)

Under the enhanced wilderness alternative, 62,500 acres of public land would be recommended suitable as wilderness. The 160-acre private inhilding and the mineral estate of the 3,840 acres of split-estate land would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of these parcels, the total area recommended suitable under this alternative would be 62,660 acres. The two dead-end roads totaling 2 miles in length would be closed and 16 miles of ways would be closed (see Map 3). (The road closure to the private inhilding is only proposed if acquisition is successful. The road closure to Bell Spring is only proposed if the cow camp can be relocated outside the wilderness area.)

Energy and Mineral Development Actions

Wilderness designation would close 53,240 acres within the WSA to mineral entry (an additional 5,420 acres of public lands along the Owyhee River, which are part of the Wild and Scenic River System, have already been closed to mineral entry by Congressional action). If acquisition is successful, 3,840 acres of split-estate land and the 160-acre private inhilding would also be closed to mineral exploration and development by wilderness designation for a total of 57,240 acres. Exploration for oil and gas, geothermal, bentonite and zeolites would be prohibited on these lands.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 3,266 AUMs. Ten miles of riparian fence would be constructed resulting in riparian protection...
on 5 miles of stream. Vehicle use for day-to-day livestock management on 16 miles of ways and 2 miles of dead-end roads would be precluded. Management of livestock and maintenance of 10 miles of fences, seven springs and a corral would be conducted mainly on horseback. Mechanized heavy equipment would be used on the average of once every 5 to 10 years to maintain three reservoirs and a mile of pipeline.

Recreation Management Actions

The entire 62,660 acres would be closed to motorized vehicle use, assuming closure of the two dead-end roads following acquisition of the private inholding and relocation of the Bell Spring Cow Camp. Presently vehicle use is limited by vehicle designation to the 2 miles of existing roads and 16 miles of existing ways. Current recreational use is estimated to be less than 300 visitor days per year. Most of this current use utilizes vehicles for access into the area via the existing roads and ways.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

A total of 57,080 acres would be open to mineral exploration and development. A total of 5,420 acres of public lands along the Owyhee River, which is part of the Wild and Scenic River System, would remain closed to mineral entry. However, due to the lack of sufficient geologic evidence to justify a major exploration/development program, only casual surface exploration is postulated. With respect to oil and gas and geothermal resources, the WSA has no known petroleum or geothermal bearing formations, a thick volcanic covering on the surface and no current mineral leases. Regarding bentonite and zeolites, there is a lack of direct evidence indicating favorability and there are no known mineral deposits and no mining claims in the WSA. Therefore, due to the lack of sufficient geologic evidence to justify a major exploration/development program, only casual surface exploration for these energy and mineral resources is postulated.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

An additional 5,770 AUMs of livestock forage currently available but unallocated would be allocated to livestock. This increase involves the entire 62,500 acre WSA plus the portions of the pastures extending outside the WSA, since livestock could drift throughout the pastures. The increase would be approximately 1,796 AUMs in the WSA, with the remainder being in portions of the pastures extending outside the WSA.

Ten miles of riparian fence would be constructed resulting in riparian protection on 5 miles of the upper portion of West Little Owyhe River.

Vehicle use for livestock management and maintenance of the 10 miles of fence, three reservoirs, seven springs, 1 mile of pipeline and a corral would continue on 16 miles of ways and 2 miles of dead-end roads. The roads are used 20 to 25 times per year, mainly to use and supply the two cow camps. The ways are used five to ten times per year to check livestock, spread salt and maintain facilities.

Recreation Management Actions

Vehicle use would continue to be restricted to the existing 2 miles of roads and 16 miles of ways. Current recreational use is estimated to be less than 300 visitor days per year. Most of this use utilizes vehicles for access into the area via the existing roads and ways. A pit toilet at Jeffs Reservoir would be developed.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.
3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. Naturalness is outstanding because the deep, winding and narrow canyons are free from the imprints of man and are nearly pristine. They offer a variety of undisturbed colors (reds, browns, tans and greens), rugged rock outcroppings and clear, cool, deep pools of water. Vast expanses of open rolling to relatively flat plateau with only a few range projects add to the area's naturalness. Approximately 94 percent of the WSA is uninfluenced by the imprints of man.

Thirty-six interior unnatural features influence approximately six percent of the WSA. These features consist of five fences (10 miles), three reservoirs, seven springs, two pipelines (totaling 1 mile), a corral, a hunter's outhouse, some survey poles, and ways (totaling 16 miles). With the exception of one fence crossing the WSA, Jeffs Reservoir and the way just west of Horse Hill, these features are all within 2 miles of the WSA boundary.

Unnatural features outside the WSA that affect the naturalness of the area consist of boundary roads, fences, springs and several cow camps. However, these features do not substantially affect the area's naturalness qualities.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The uniform shape and large size of the study area substantially enhance a visitor's ability to experience solitude. The many miles of winding canyons with scattered patches of aspen, mahogany and willow provide both topographic and vegetative screening.

While recreation use would be concentrated in the main canyons, there is sufficient room and variety to effectively screen visitors from one another. The winding canyons and riparian vegetation screen the view within the canyon rims. Much of the topography surrounding the canyons is undulating plateau with shallow draws, low rolling hills and scattered rims that provide a considerable amount of screening. Areas with very little topographic screening include a small plateau north of Deer Flat, a small plateau south of Horse Hill, and a narrow strip paralleling the Anderson Crossing road.

Outside sights and sounds affecting the WSA's opportunity for solitude are minor and are associated with grazing management activities, traffic on boundary roads and low-level aircraft flights.

Due to the presence of water, shade, outstanding scenery and wildlife in the canyons, recreation opportunities are outstanding for backpacking, day hiking, photography, camping, sightseeing, bird watching, hunting and horseback riding.

Special Features

The West Little Owyhee River Canyon is deeply incised, with interesting erosional patterns and varied rock formations.

The area supports the largest summer concentration of pronghorn antelope, sage grouse and white-tail jackrabbits in Malheur County. The sage grouse is a candidate for Federal listing under the Endangered Species Act.

The vegetation in portions of the West Little Owyhee Canyon is virtually pristine because the rugged canyon walls prevent livestock grazing. The ungrazed riparian zones exemplify the natural, tall, lush growth of grass, reeds and sedges.

The quality of the scenery is outstanding in the WSA because of the deep, winding and narrow canyons, variety of colors, rugged rock outcroppings and clear, cool, deep pools of water in the canyon bottoms.

Seven cultural sites have been discovered in the WSA, including two undisturbed petroglyphs. One petroglyph site is associated with hunting blinds constructed from rock and the other was an intensively used aboriginal campsite where a wide range of tools and materials were found. The remaining sites consist of four temporary prehistoric camp areas where stone tools appear to have been manufactured.

Special opportunities also exist for scientific and educational study of the plants and animals of the WSA, especially in Massie and Upper West Little Owyhee Canyon and the sagebrush ecosystems above the canyon rims. The white-tail and black-tail jackrabbits, sage grouse and antelope are of particular interest.
Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the low sagebrush/bluebunch wheatgrass, low sagebrush/Sandberg’s bluegrass and low sagebrush/Idaho fescue communities.

Boise, Idaho is the one standard metropolitan statistical area with population over 100,000 within five hours’ driving time of the WSA.

Energy and Mineral Development

The energy and mineral resources of the WSA were evaluated from available geologic data supplemented by a limited amount of geochemical stream sediment and rock chip sampling by Oregon Department of Geology and Mineral Industries (DOGAMI) under BLM contract. This geochemical survey is the primary basis for the metallic minerals classification in the WSA. The DOGAMI report is entitled “Geology and Mineral Resources of 18 BLM Wilderness Study Areas, Harney and Malheur Counties, Oregon.” Using the DOGAMI report and a heavy mineral analysis conducted by Barringer Resources, Inc., the study area was reevaluated by BLM geologists.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the mineral classification for the WSA. Map 4 shows those energy and mineral resources with moderate potential for occurrence in the WSA.

Surface geologic material in the WSA consists largely of late Tertiary (Late Miocene) siliceous volcanic rocks (partly to densely welded tuffs and rhyolite or dacite flows). Other exposed geologic material consists of late Tertiary basaltic and andesitic flows and flow breccias. No pre-Tertiary rocks are known to be exposed in the WSA and it is not known what underlies the surface Cenozoic cover. No metallic mineralization is known in the WSA.

Energy Resources

Based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of geothermal resources. Because of youthful volcanism and above-normal heat flow, most of southeastern Oregon is generally considered favorable for thermal waters for direct heat use. Smaller areas within this region are favorable for high temperature geothermal resources. However, none have yet been identified within the WSA.

Again based upon indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas because of the possibility of oil-bearing rocks at depth. However, there has been no deep drilling in the vicinity that has penetrated the Tertiary volcanic cover.

As of October 16, 1987, there were no oil/gas, geothermal or coal leases within the WSA.

Mineral Resources

Based upon indirect evidence the entire WSA is considered to have a moderate potential for the occurrence of bentonite and zeolites.

As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Although the predominant vegetation in the WSA is low sagebrush with an understory of grasses, a variety of plant species may be found here. The plateaus support a variety of dryland plants including juniper, bitterbrush, snowberry, current, giant wildrye, Thurber’s needlegrass, phlox, balsamroot and evening primrose. Antelope Creek and West Little Owyhee canyons provide habitat for a variety of riparian species including rushes, sedges, rose, gooseberry and willows. Mountain mahogany and aspen groves are found between the creeks and rims. Much of this vegetation is pristine because the cliffs have prevented livestock grazing.

More than half of the WSA is a low sagebrush/Sandberg’s bluegrass vegetative community, and the rest is a low sagebrush/bluebunch wheatgrass community and low sagebrush/Idaho fescue community. The majority of the vegetation is in a late seral stage with the remainder in a mid-seral stage, with a static to upward trend. The upper 5-mile portion of West Little Owyhee Canyon receives heavy livestock utilization and is in a downward trend.
There are no known threatened or endangered plant species within the WSA.

Wildlife

Most wildlife habitat in the WSA is in excellent condition. The high sage plateaus contain preferred summer habitat for the largest concentration of sage grouse in Malheur County. Approximately 350 pronghorn antelope and roughly 150 mule deer occur within the WSA. The deer are found primarily within riparian communities. During severe winters both deer and antelope move to lower elevations. The rugged canyons of Antelope Creek and Upper West Little Owyhee River provide habitat for a wide variety of nongame wildlife species including marmots, common intermountain rodents, badgers and coyotes. These canyons also contain a high density of nesting sites for golden eagles, prairie falcons, kestrels and red-tailed hawks.

Most of Antelope Creek and the West Little Owyhee River are confined to deep, vertical-walled canyons. Both canyons sustain severe scouring in their confined reaches during spring runoff and thundershowers. Herbaceous plant cover is the only riparian vegetation that persists in such areas. Woody plant species appear where the canyons widen and the influences of scouring are absent.

In summer, deep pools that remain after spring runoff, some with well developed riparian canopies, provide fish habitat throughout the canyon reaches. Dry-season pools more than 10 feet deep provide excellent habitat for rainbow trout, redside shiners, bridge lip suckers and speckled dace. Jeffs Reservoir is stocked annually by ODFW with rainbow trout.

Bell Springs is a natural meadow which was fenced from cattle use in the 1960’s to enhance wildlife habitat.

Watershed

The WSA contains 31 miles of streams. Both Antelope Creek (12 miles) and West Little Owyhee River (19 miles) are ephemeral. During the late summer, water persists in isolated, deep-water pools. Water quality is generally good except where there are broad, flat, open areas which are readily accessible to cattle. Three areas where the canyons widen are on the upper reaches of the West Little Owyhee, on the West Little Owyhee at the confluence with Massie Canyon, and on the upper reaches of Antelope Creek. These three areas are subject to intense livestock use causing bank erosion, which results in wide and shallow channels. The change to wide, shallow channels and the reduction in stream side vegetation results in an increase in water temperatures and a decline in water quality. Potential is considered to be high for riparian vegetation and improved stream conditions within these valleys.

Livestock Grazing

Portions of three grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include five fences (10 miles), three reservoirs, seven springs, two pipelines (1 mile total length) and a corral.

Livestock operators use motor vehicles on ways approximately five to ten times per year for fence and reservoir inspection and maintenance, to check on livestock and spread salt. Due to rugged topography and the lack of vehicular access to parts of the WSA, much of the livestock management is accomplished on horseback. Most of this work is done from two cow camps located at Bell Spring and on the private inholding in the southwestern portion of the WSA. The roads into these cow camps are used 20 to 25 times per year to supply and use the camps.

Recreation Use

Recreation in the WSA includes backpacking, day hiking, fishing, hunting, bird watching, camping, horseback riding, sightseeing and photography. Use of vehicles is limited by vehicle designation to existing roads and ways. Vehicle use is minor and usually associated with hunting, day hiking, sightseeing or backpacking.

Recreation use at Jeffs Reservoir includes fishing, hunting and associated camping. Fishing use at the reservoir has caused sanitation and litter problems.

Overall recreation use in the WSA is estimated to be less than 300 visitor days per year.

Local Personal Income

Livestock use at the current level of 3,266 AUMs and recreation use totaling 300 visitor days per year are the primary resource outputs that generate economic
activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $39,192 for livestock grazing and $3,600 related to recreation use of the WSA, for an overall total of $42,792. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 62,500 acres. Recommended unsuitable for wilderness: 0 acres.

Impacts on Wilderness Values

All 62,500 acres of the WSA would be designated wilderness. Wilderness values within the entire 62,500 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features (including undisturbed riparian areas, large populations of sage grouse and antelope, cultural sites, outstanding scenery, and undeveloped plateaus and canyons) would also be protected.

Naturalness

The naturalness of the area's undisturbed canyons and vast plateaus (94 percent of the WSA is pristine, uninfluenced by any unnatural features) would be enhanced by prohibiting motorized vehicle use. Closure of 16 miles of ways, which influence approximately 1,400 acres (slightly over two percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, the two parallel vehicle tracks would revegetate, making the ways substantially unnoticeable. Three miles of ways in the north-east portion of the WSA, which access two pipelines (total of 1 mile) and Jeffs reservoir, may receive periodic use every 5 to 10 years in order to provide heavy equipment maintenance. This infrequent amount of use would not prevent these ways from revegetating. The other two reservoirs which may require maintenance every 5 to 10 years have no existing access. They are both within 1 mile of the boundary and would be maintained through cross-country access with little disturbance to naturalness.

The proposed riparian fence on the upper portion of West Little Owyhee River would likely be allowed because it would protect natural processes, restore deteriorated habitat and be compatible with the wilderness character of the area. The construction of the 10 miles of fence would exclude livestock and allow revegetation, improving the natural appearance of 5 miles of riparian area. The fence itself, as an unnatural feature, would influence approximately 100 acres within the immediate area along 5 miles of the West Little Owyhee River.

Solitude

Opportunities for solitude provided by the area's large size, many miles of winding canyons and limited vehicle access would be further improved through the elimination of motorized use on the 16 miles of ways. Vehicles would be limited to the boundary roads and the two dead-end roads (1 mile each). This reduction in vehicular access would provide a large core area for people to hike into and experience solitude with no disturbance from vehicle use. The projected increase in visitor days from 300 to 450 would not significantly impact opportunities for solitude because of the large size of the area and the good topographic screening.

Primitive and Unconfined Recreation

Closure of the 16 miles of ways to motorized use would increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography and sightseeing experiences would improve with the removal of vehicles and the rehabilitation of the ways. A more natural, primitive, wild setting would be provided. Fencing 5 miles of riparian area, excluding livestock and allowing the vegetation to recover would enhance wildlife viewing, camping, hunting and fishing opportunities on the upper portion of West Little Owyhee River. Deer, birds and fish populations would increase, providing improved recreational opportunities.
Special Features

Eliminating motorized vehicle use on the 16 miles of ways would reduce impacts to special features. These impacts include soil compaction and rutting of wetland meadows/riparian areas, minor seasonal disturbance of sage grouse and antelope, impairment of scenic vistas, and possible destruction or damage to cultural sites. The ways traverse meadows and approach springs where rutting and soil compaction is occurring. The ways also occur on steep slopes where severe erosion channels have resulted and pass through areas with concentrations of sage grouse and antelope causing disturbance and displacement of animals. The presence of the ways impairs the high scenic quality of the area, resulting in a visual contrast not in harmony with the natural setting. Erosion associated with the ways may also impact cultural sites.

By excluding livestock, the riparian fence on the West Little Owyhee would result in restoration of the riparian vegetation, increased wildlife/fisheries habitat and improved scenic quality.

Conclusion: Wilderness designation of the entire 62,500 acres within the Upper West Little Owyhee WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 53,240 acres within the WSA to mineral entry. (An additional 5,420 acres of public lands along the West Owyhee River, which is part of the Wild and Scenic River System, are already closed to entry by Congressional action.) The 160-acre private parcel and the 3,840 acres of split-estate lands would be open to mineral exploration and development.

Energy Development

Exploration for oil and gas and geothermal resources, which have moderate potential for occurrence, would be precluded on 53,240 acres. (An additional 5,420 acres of public lands along the West Owyhee River, which is part of the Wild and Scenic River System, are already closed to entry by Congressional action.) Exploration could occur on the 3,840 acres of split-estate lands and the 160-acre private inholding. Due to the lack of geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is expected.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration for bentonite and zeolites would be precluded on 53,240 acres. (An additional 5,420 acres of public lands along the West Owyhee River, which is part of the Wild and Scenic River System, are already closed to entry by Congressional action.) Exploration could occur on the 3,840 acre of split-estate lands and the 160-acre private inholding. However, due to a lack of geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is expected.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation over most of the area. Vegetative composition as described in the vegetation section in the Affected Environment would not be changed. Ecological condition, which is mainly in late seral stage with some areas in mid-seral stage with a static to upward trend, also would not change. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.

A major exception to the above description is the riparian vegetation on 5 miles of the upper portion of West Little Owyhee River. This area receives heavy livestock utilization exceeding 50 percent, has not reached its potential natural community and is in a downward trend. Exclusion of livestock by fencing would enhance the riparian area by allowing the ecological condition to reach its potential natural community. Fencing would allow an increase in the composition of willows, rose, gooseberry, sedges, rushes and other riparian vegetation and would reduce utilization, with a corresponding increase in residual ground cover.

The 16 miles of ways, once closed to vehicles, would revegetate within three to five growing seasons.

Conclusion: Riparian vegetation would be improved along 5 miles of West Little Owyhee River. The 16 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the area.
Impacts on Wildlife

Wildlife habitat for approximately 150 deer, 350 antelope, a large population of sage grouse and nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 5,770 AUMs would not be allowed because of its potential impact upon wilderness values (e.g., a decrease in residual ground cover and an increase in trampling and erosion of stream banks). Surplus forage above the minimum level identified by ODFW as necessary for deer and antelope population goals would be available. Closure of the 16 miles of ways would reduce minor seasonal vehicle disturbances to antelope on portions of the broad plateaus, to sage grouse in some of the meadows and to nesting raptor populations adjacent to the rugged canyons of both Antelope and West Little Owyhee. The fence excluding livestock from 5 miles of the West Little Owyhee River would allow restoration of riparian habitat which would enhance deer, trout and nongame bird populations.

Closing the 3-mile way to Jeffs Reservoir would eliminate fish stocking by vehicles. The added expense and inconvenience of aerial stocking or packing the fish in would probably result in a discontinuance of stocking Jeffs Reservoir. Since there is no natural reproduction at Jeffs Reservoir, fish populations would ultimately die out.

Conclusion: Wildlife habitat and populations would be maintained on 62,500 acres.

Impacts on Watershed

The 5-mile riparian fence on West Little Owyhee would exclude livestock, resulting in an improvement of water quality and increased channel stability within the exclosure. Elimination of streambank trampling, and growth of riparian vegetation would allow for increased bank stability, more streambank vegetative cover, and deeper and narrower channels. This would help keep summer stream temperatures relatively low and reduce sedimentation.

Watershed conditions outside of the exclosure, but within the confines of 6 miles of narrow canyons, would remain unchanged. However, in the broader, more open streamside areas, watershed conditions would continue to decline due to grazing by livestock which would reduce residual ground cover and cause bank erosion. The current grazing system of season-long and fall use within these areas would not result in improved riparian and stream conditions.

There would be little change in the watershed over the rest of the area.

Conclusion: Water quality and channel conditions would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline in more open streamside areas.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 3,266 AUMs within the portions of the three allotments in the WSA. Wilderness designation would preclude the allocation of an additional 5,770 AUMs (1,796 AUMs within the WSA) of currently available but unallocated forage in affected pastures because of the potential adverse impacts upon wilderness values (e.g., a decrease in residual ground cover and an increase in trampling and erosion of stream banks). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 16 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and a slight additional expense to livestock operators. Much of the area is presently inaccessible to vehicles, thus much livestock management is currently accomplished by horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs and a mile of pipeline. This periodic infrequent use would involve 4 miles of ways and 1.5 miles of cross-country travel.

The riparian fence would exclude livestock from 5 miles of the West Little Owyhee River. This would have little impact upon livestock use, since sufficient forage and water would be available outside the exclosure.

Conclusion: Existing livestock use would remain at the current use level of approximately 3,266 AUMs. A potential allocation of 5,770 AUMs (1,796 AUMs within the WSA) of currently available forage would be foregone. Sixteen miles of ways would be closed.

Impacts on Recreation Use

Vehicular access to Jeffs Reservoir for fishing would be eliminated due to the closing of the way. Anglers would have to traverse the 3.5 miles to the reservoir by foot or on horseback. Without vehicular access, ODFW would probably stop stocking fish in the
reservoir. With no natural reproduction, fish would eventually disappear from the reservoir and anglers would no longer visit the site. An estimated 100 visitor days (one-third of the area's total recreation use) would be eliminated. Construction of the pit-toilet at the reservoir would not be allowed, or be necessary, because of the reduced use. The litter problem at Jeffs Reservoir would also be greatly reduced.

Closing the ways would restrict vehicular access to West Little Owyhee and Massie Canyons, thus reducing day hikes in the central portion of the West Little Owyhee Canyon. Closure of the ways would also eliminate vehicle-based hunting. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would more than offset the decreases in fishing use at Jeffs Reservoir, in day hiking use in the West Little Owyhee Canyon, and in vehicle-based hunting.

**Conclusion:** Overall recreation use would increase from 300 to approximately 450 visitor days per year.

**Impacts on Local Personal Income**

Livestock grazing would remain at 3,266 AUMs. Overall recreation use would increase by 150 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $1,800 per year.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would increase by approximately $2,000.

**Enhanced Wilderness (Proposed Action)**

Recommended suitable for wilderness: 62,500 acres (62,660 if the 160 acres of private land is acquired) Recommended nonsuitable for wilderness: 0 acres

**Impacts on Wilderness Values**

The enhanced wilderness alternative would add 62,660 acres to the NWPS, assuming the 160-acre private inholding is acquired as proposed under this alternative. The mineral estate on 3,840 acres of split-estate would also be acquired. Sixteen miles of ways and 2 miles of dead-end roads would be closed (the 1-mile road to the private property would only be closed if acquisition is successful and the 1-mile road to the Bell Spring Cow camp would only be closed if the cow camp can be relocated outside the wilderness area). All of the WSA would be designated wilderness, and wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features (including undisturbed riparian lands, cultural resources, large populations of sage grouse and antelope, outstanding scenery and undeveloped plateaus and canyons) would also be protected. Acquisition of the mineral estate and private land would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

**Naturalness**

The effects on naturalness would be similar to the all wilderness alternative except that the enhanced wilderness alternative also includes the acquisition of 3,840 acres of mineral estate and 160 acres of private land (if the owners are willing), and the closure of 2 miles of dead-end roads. The acquisition of the seven parcels (3,840 acres) of mineral estate scattered over the entire WSA and the 160-acre inholding in the southwest corner of the WSA would preclude any adverse impacts from mineral entry and exploration, thus preserving the naturalness of the area. The relocation of the Bell Spring Cow camp and the cow camp on private property, along with the revegetation of the 2 miles of closed roads, would eliminate their unnatural influence on approximately 400 acres.

Closing the 16 miles of ways would allow revegetation and eliminate their unnatural influence on approximately 1,400 acres. The riparian fence on the upper portion of West Little Owyhee River would improve the natural appearance of 5 miles of riparian area, but add the unnatural feature of the fence influencing approximately 100 acres.

**Solitude**

The effects on solitude would be similar to the all wilderness alternative except for the additional enhancement of opportunities for solitude caused by the proposed road closures and acquisitions. Eliminating motorized vehicle use on 2 miles of roads and 16 miles of ways, removing human activity associated with two cow camps and precluding mineral entry and exploration on the 3,840 acres of non-Federal mineral estate would increase solitude opportunities. The projected increase in visitor days from 300 to 450
would not significantly impact opportunities for solitude because of the large size of the area and the good topographic screening.

**Primitive and Unconfined Recreation**

The same increased opportunities for primitive and unconfined recreation resulting from closure of the ways and construction of the riparian fence, identified under the all wilderness alternative, would occur under this alternative. In addition, acquisition of the 3,840 acres of mineral estate would prevent mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on the two dead-end roads, the removal of the two dew camps and the acquisition of the 160-acre private inholding would have little impact on primitive recreational opportunities since the roads, dew camps and private property are all located near the boundary roads and outside of the primary area where primitive and unconfined recreation pursuits would occur.

**Special Features**

The impacts to special features would be the same as the all wilderness alternative with the exception of the acquisition of the 3,840 acres of mineral estate, which would prevent mineral entry and exploration. The absence of any need for motorized access to these seven parcels would prevent any further scarring and erosion of unique land forms, damage to cultural sites, and disruption to large populations of antelope and sage grouse.

The elimination of vehicle use on the two dead-end roads, the removal of the two cow camps and the acquisition of the 160-acre private inholding would have little affect on special features since they are all located near the boundary roads and outside of the primary area where the special features occur.

The closure of the 16 miles of ways eliminates soil compaction, rutting of wetland areas, disturbance of wildlife and impairment of scenic vistas and cultural sites. The riparian fence would allow for the restoration of riparian vegetation resulting in enhancement of wildlife habitat and populations.

**Conclusion:** Wilderness designation of 62,660 acres (assuming acquisition of 160 acres of private property) would protect and enhance existing wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 57,240 acres to mineral entry if the 160-acre private parcel and the mineral estate of the 3,840 acres of split-estate lands are acquired. A total of 5,420 acres are already closed to entry due to Wild and Scenic River designation.

**Energy Development**

Exploration for oil and gas and geothermal resources would be precluded on 57,240 acres, assuming acquisition of the 160-acre private inholding and the mineral estate of the 3,840 acres of split-estate lands. An additional 5,420 acres of public lands along the West Owyhee River, which is part of the Wild and Scenic River System, are already closed to entry by Congressional action. Due to the lack of geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is expected.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Exploration for bentonite and zeolites would be precluded on 57,240 acres, assuming acquisition of the 160-acre private inholding and the mineral estate of the 3,840 acres of split-estate lands. An additional 5,420 acres of public lands along the West Owyhee River, which is part of the Wild and Scenic River System, are already closed to entry by Congressional action. Due to the lack of geologic evidence to justify an extensive exploration/development program, only casual exploration (without development) is expected.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Vegetation**

The impacts upon vegetation under the enhanced wilderness alternative would be similar to the all wilderness alternative. Little or no change would take place to vegetative composition and ecological condition, which is mainly in late seral stage, with some areas in mid-seral stage with a static to upward trend. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.
A major exception to the above description is the riparian vegetation on 5 miles of the upper part of West Little Owyhee River. This area receives heavy livestock utilization exceeding 50 percent, has not reached its potential natural community and is in a downward trend. Exclusion of livestock by fencing would enhance the riparian area by allowing vegetation to reach its potential natural community by increasing composition of willows, rose, gooseberry, sedges, rushes and other riparian vegetation, and by reducing utilization of vegetation, which would lead to an increase in residual ground cover.

Closure of the 16 miles of ways, would allow revegetation within three to five growing seasons.

The acquisition of the mineral estate on seven parcels (3,840 acres) of split-estate land, the acquisition of the 160-acre private parcel and the closure of the two dead-end roads (2 miles) would preclude any future exploration and need for access. This would prevent any future disturbance to vegetation on the 3,840 acres of split estate, the 160-acre private parcel and approximately 8 miles of access. The 2 miles of roads, which would be closed to Bell Spring and the private parcel, would revegetate as native vegetation fills in the vehicle tracks.

**Conclusion:** Riparian vegetation would be improved along 5 miles of West Little Owyhee. Two miles of dead-end roads and 16 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the area.

### Impacts on Wildlife

The enhanced alternative would result in many of the same environmental consequences as the all wilderness alternative. Wildlife habitat for approximately 150 deer, 350 antelope, the large population of sage grouse and the area's nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. The proposed livestock grazing increase of 5,770 AUMs would not be allowed because of its potential impact upon wilderness values (e.g. a decrease in residual ground cover and an increase in trampling and erosion of stream banks). The net result would be an increase in available forage to a level above that identified by ODFW as necessary for deer and antelope. Closure of the 16 miles of ways would reduce minor seasonal vehicle disturbance to antelope on portions of the broad plateaus, to sage grouse populations in some of the meadows and to nesting raptor populations adjacent to the rugged canyons of both Antelope and West Little Owyhee. The fence excluding livestock from 5 miles of West Little Owyhee would allow restoration of riparian habitat resulting in an enhancement of deer, trout and nongame bird populations.

Closing the 3-mile way to Jeffs Reservoir would eliminate fish stocking by vehicles. The added expense and inconvenience of aerial stocking or packing the fish in would probably result in a discontinuance of stocking Jeffs Reservoir. Since there is no natural reproduction at Jeffs Reservoir, fish populations would die out.

In addition to these impacts, the enhanced alternative would provide additional protection to wildlife habitat and wildlife populations by precluding mineral exploration on 3,840 acres of split-estate lands, if acquired, and by precluding human disturbance to wildlife on 160 acres of private property, if acquired. Closure of the two dead-end roads would remove existing, minor vehicle disturbance to wildlife.

**Conclusion:** Wildlife habitat and populations would be maintained on 62,660 acres.

### Impacts on Watershed

As with the all wilderness alternative the 5-mile riparian fence on West Little Owyhee would exclude livestock, resulting in an improvement of water quality and increased channel stability. Elimination of streambank trampling and growth of riparian vegetation would allow for increased bank stability, increased riparian cover and deep, narrow channels. Deep, narrow channels coupled with good canopy cover will help keep summer stream temperatures relatively low. Stable banks and riparian vegetation in good condition reduce siltation due to bank sloughing.

Watershed conditions outside of the exclosure, but within the confines of 6 miles of narrow canyons, would remain unchanged. However, in the broad open canyon areas, watershed conditions would continue to decline due to grazing by livestock which would reduce residual ground cover and cause bank erosion. The current grazing system of season-long and fall use within these broad areas would not result in improved riparian and stream conditions.

**Conclusion:** Water quality and channel conditions would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline in more open streamside areas.
Impacts on Livestock Grazing

Livestock use would continue at the current level of approximately 3,266 AUMs. Wilderness designation would preclude the allocation of 5,770 AUMs (1,796 AUMs within the WSA) of currently available but unallocated forage in affected pastures because of the potential impact upon wilderness values (e.g., a decrease in residual ground cover and an increase in trampling and erosion of stream banks). Increases would not be allowed in pastures entirely or partially within the wilderness area.

Vehicle use for livestock management and facility inspection/maintenance on 16 miles of ways would be precluded, resulting in inconvenience and slight additional expense to livestock operators. Much of the area is presently inaccessible to vehicles, and livestock management is currently accomplished by riders on horseback. Heavy equipment may be used once every 5 to 10 years for maintenance of three reservoirs and a mile of pipeline. This periodic, infrequent use would involve 4 miles of ways and 1.5 miles of cross-country travel. The additional closure of the 2 miles of dead-end roads would only occur if the two cow camps are moved outside of the wilderness area. This would require livestock operators to travel a slightly greater distance to and from the cow camps to reach the area.

The riparian fence would exclude livestock from 5 miles of West Little Owyhee River. This exclusion would have little impact upon livestock grazing, since sufficient forage and water would be available outside the exclusion.

Conclusion: Existing livestock use would remain at the current use level of approximately 3,266 AUMs. A potential allocation of 5,770 AUMs (1,796 AUMs within the WSA) of currently available but unallocated forage would be foregone. Vehicle use of 16 miles of ways and 2 miles of roads would be precluded. The two cow camps would be moved outside the wilderness area.

Impacts on Recreation Use

The same decrease in recreational opportunities dependent on motorized access and increased opportunities for primitive and unconfined recreation identified under the all wilderness alternative would occur under this alternative. As the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users would offset the decreases in fishing use at Jeffs Reservoir, in day hiking use in the West Little Owyhee Canyon, and in vehicle-based hunting. In addition, acquisition of the 3,840 acres of mineral estate would prevent mineral entry and exploration, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on the two dead-end roads, the removal of the two cow camps and the acquisition of the 160-acre private inholding would have little effect on recreational opportunities since the roads, cow camps and private property are all located near the boundary roads and outside of the primary area where recreational pursuits would occur.

Conclusion: Overall recreation use would increase from 300 to approximately 450 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 3,266 AUMs. Overall recreation use would increase by 150 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $1,800 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $2,000.

No Wilderness/No Action

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 62,500 acres.

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 62,500 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features, including deeply incised canyons, varied rock formations, large concentrations of antelope and sage grouse, pristine vegetation, outstanding scenery and opportunities for cultural studies, would be subject to the effects of the projected management actions. Projected actions include casual energy and mineral exploration, continued vehicle use for livestock management and facility inspection/maintenance, allocation of 5,770 AUMs of livestock forage currently available but unallocated, construction of 10 miles of riparian fence,
construction of a pit toilet at Jeffs Reservoir, and continued recreational vehicle use limited to existing roads and ways.

**Naturalness**

Vehicle use on the 16 miles of ways would continue the impact of the vehicle tracks upon naturalness on approximately 1,400 acres (2 percent of the WSA). Most of this influence upon the area's naturalness occurs near the south and southeast boundaries.

Mineral exploration would cause short-term and localized impacts to the area's naturalness. Minor surface disturbance (exploration pits) is expected. Reclamation and natural revegetation would leave little evidence of disturbance to naturalness.

The allocation of an additional 5,770 AUMs would increase trampling around water sources and increase utilization of forage, resulting in a more grazed appearance with less residual ground cover. Most of the WSA would have a more grazed appearance, but deterioration of naturalness would especially affect approximately 2,000 acres near water sources, in shady areas and on level ground. Riparian vegetation would be reduced along approximately 20 miles of stream.

Construction of the fence for livestock management and riparian protection would improve the naturalness of 5 miles of riparian area on West Little Owyhee. The fence, as an unnatural feature, would influence approximately 100 acres.

Construction of the pit toilet would influence the naturalness of 10 acres around Jeffs Reservoir. Human fecal contamination and related litter would be eliminated.

**Solitude**

Continued vehicle use on 16 miles of ways and human activity associated with mineral exploration would cause short-term local impairment of solitude opportunities adjacent to the activity. Vehicle use mostly occurs over the south and southeast portions of the WSA near the boundaries. Solitude opportunities in the large unroaded core area and rugged winding canyons would remain.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing roads and ways. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 16 miles of ways and 2 miles of dead-end roads in the WSA.

Construction of the riparian fence would improve opportunities for primitive and unconfined recreation associated with the riparian enhancement, such as fishing, hunting, birdwatching and camping in a natural setting.

Both mineral exploration and an allocation of 5,770 additional AUMs in grazing use would reduce primitive recreation opportunities. Mineral exploration may result in small areas of surface disturbance and would require vehicle access. Additional livestock or longer periods of grazing would increase vegetation removal, trampling, fecal deposits and fouling of water, especially in the areas of livestock concentration (i.e., around water, shade and on level ground) which are places where recreationists also concentrate. The natural, wild setting upon which primitive recreation depends would be impaired.

**Special Features**

Continued vehicle use of existing roads and ways would maintain the impacts upon the special features including vistas, large concentrations of antelope and sage grouse, outstanding scenery and cultural values. These impacts include soil compaction and rutting of wetland meadows/riparian areas, minor seasonal disturbance of sage grouse and antelope, impairment of scenic vistas, and possible destruction or damage to cultural sites.

Mineral exploration would result in a minimal, short-term disturbance of sage grouse and localized but more long-term, unnatural disturbance of scenery if such actions as digging mineral test pits or cross-country access occurs.

The riparian fence would exclude livestock, resulting in an enhancement and protection of the riparian zone on 5 miles of West Little Owyhee River. The grazing allocation of 5,770 additional AUMs would increase grazing pressure on the unprotected portions of the riparian areas, particularly in the easily accessible portions of the canyon. This increased pressure would result in further deterioration of these riparian areas.

Additionally, continued vehicle access would maintain the opportunity for vandalism and theft at some cultural sites.

**Conclusion:** In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 2,100 acres of the WSA, with further declines from other potential uses over the long term.
Impacts on Energy and Mineral Development

A total of 57,080 acres within the WSA would be open to mineral entry. A total of 5,420 acres would remain closed due to Wild and Scenic River designation.

Energy Development

Casual exploration for oil and gas and geothermal resources is expected. An extensive exploration/development program is not anticipated due to a lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on energy development.

Mineral Development

Casual exploration for bentonite and zeolites is expected. A major exploration/development program is not anticipated due to a lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

Riparian vegetation would be enhanced and ecological status would advance towards the potential natural community on 5 miles of the upper portion of West Little Owyhee River as a result of livestock exclusion by fencing.

Utilization of key forage species would increase from 40 percent to approximately 50 percent as a result of allocating 5,770 AUMs currently available but not presently allocated. There would be a corresponding decrease in residual ground cover. Approximately 20 miles of unfenced riparian areas along Antelope Creek and the lower stretch of West Little Owyhee River would receive increased grazing use. There would be a reduction in rushes, sedges, rose, gooseberry, willow and aspen along these riparian areas. Approximately 6 miles of the middle section of West Little Owyhee River is inaccessible to livestock because of sheer-walled canyons. Vegetation within this area would not change.

Conclusion: There would be an increase in utilization of key forage species, with a corresponding decrease in residual ground cover over most of the area. Riparian vegetation would be enhanced on 5 miles of stream, further degraded on 20 miles of stream and little changed on 6 miles of stream.

Impacts on Wildlife

Antelope and sage grouse populations and habitat would continue to be disturbed by occasional vehicle use on the existing 18 miles of roads and ways. This minor seasonal vehicle disturbance affects antelope on portions of the broad plateaus, sage grouse populations in some of the meadows and nesting raptor populations adjacent to segments of Antelope and West Little Owyhee canyons.

Mineral exploration would temporarily disturb game and nongame species within the immediate area of exploration activity. The amount of disturbance would be minor.

The additional grazing allocation of 5,770 AUMs would leave sufficient forage to maintain existing populations of wildlife. The decrease in residual ground cover resulting from increased grazing pressure would result in a reduction of nesting and escape cover for chukar, sage grouse, song birds and nongame mammals.

The riparian fence excluding livestock from 5 miles of the West Little Owyhee River would allow restoration of riparian habitat, resulting in an enhancement of deer, trout and nongame bird populations. The unfenced 20 miles of riparian habitat accessible to livestock would receive increased grazing pressure resulting in further deterioration of deer, trout and nongame bird habitat. The way to Jeffs Reservoir would remain open, allowing continued fish stocking by vehicles.

Conclusion: Nesting and escape cover for sage grouse, chukars and other wildlife species would be reduced. Wildlife habitat and populations of deer, trout and nongame birds would be enhanced in the 5-mile fenced riparian area and degraded in the 20-mile unprotected riparian area due to the additional allocation of AUMs.

Impacts on Watershed

The 5-mile riparian fence on the upper portion of the West Little Owyhee River would exclude livestock, resulting in an improvement of water quality within the exclosure. Elimination of streambank trampling and growth of riparian vegetation would allow for increased bank stability resulting in deep, narrow channels, which would help keep summer stream temperatures relatively low. Stable banks and riparian vegetation in good condition would keep stream siltation to low levels.
Six miles of the West Little Owyhee flows through inaccessible canyons and would, therefore, experience little change in water quality and channel conditions. Under the current season-long and fall grazing system, riparian areas not excluded from cattle grazing or inaccessible to cattle would experience further deterioration as a result of the additional allocation of AUMs. The areas particularly susceptible are the portions of the canyons readily accessible to cattle. These areas occur on the upper reaches of the West Little Owyhee, on the West Little Owyhee at the confluence with Massie Canyon, and in the upper reaches of Antelope Creek. These three areas would be subject to more intense livestock use causing bank erosion, wide and shallow stream channels and little riparian vegetation. The presence of wide, shallow channels would result in an increase in water temperatures, increased siltation and a decline in water quality.

Conclusion: Water quality and channel conditions would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline over 20 miles of stream in more open areas.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated, resulting in an increase in livestock forage allocation of 5,770 AUMs within affected pastures. The increase would be approximately 1,796 AUMs in the WSA, with the remainder being in portions of the pastures extending outside the WSA.

Vehicle use for livestock management and facility inspection/maintenance would continue on 16 miles of ways and 2 miles of dead-end roads. The riparian fence would exclude livestock from 5 miles of the upper portion of West Little Owyhee Canyon. This would have little impact upon livestock since sufficient forage and water would be available outside the exclosure. The two cow camps would remain in their present locations.

Conclusion: An additional allocation of 5,770 AUMs (1,796 AUMs within the WSA) would be realized.

Impacts on Recreation Use

Motorized recreation use would continue on 16 miles of ways and 2 miles of dead-end roads. Vehicle access for day hikes in the central portion of West Little Owyhee Canyon and vehicle-based hunting would continue. Vehicular access to Jeffs Reservoir for fishing would continue, and construction of the pit toilet would solve the sanitation problem there.

The riparian fence would result in an enhancement of recreation use associated with an improved natural setting and increased populations of trout, deer and birds along 5 miles of stream. However, increased allocation of livestock forage would degrade the natural setting and reduce populations of deer, trout and nongame birds along 20 miles of streams, resulting in fewer recreational opportunities in these areas.

Surface disturbance and minor disruption of wildlife from mineral exploration would slightly disturb the natural setting for recreational activities, including hunting opportunities.

Overall, declines in primitive recreation opportunities would be offset by increases in vehicle-dependent activities, thus maintaining current recreation use trends.

Conclusion: Overall recreation use would remain at the current level of approximately 300 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would increase by 5,770 AUMs. Overall recreation use would remain at 300 visitor days per year.

Table 6 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $69,240 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $69,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (Enhanced Wilderness), mineral exploration and an increase in livestock forage allocation would be foregone. Vehicle use would be excluded, eliminating opportunities for those who prefer this type of recreation. There would be a slight increase in livestock management costs as a result of the closure of the 18 miles of ways and dead-end roads and the slightly increased distances to the relocated cow camps.
Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue, with some added, minor inconvenience and expense to livestock operators resulting from the exclusion of vehicles for day-to-day livestock management/inspection activities. Fishing use at Jeffs Reservoir would be replaced by other primitive recreation activities. The long-term productivity of the wilderness values would be preserved. Long-term productivity of riparian areas and watershed would be maintained by not allocating additional AUMs.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area is capable of being managed to preserve its wilderness characteristics. Manageability would be enhanced if the private inholding and mineral estate of the split-estate lands were acquired and the two dead-end roads were closed. The acquisitions would prevent potential adverse effects from access to, and incompatible surface disturbing activities on, these parcels.

Rationale for Selection of the Proposed Action

The enhanced wilderness alternative is the proposed action because the benefits of preserving the area's wilderness values — including the undeveloped plateaus and canyons, the undisturbed riparian lands, large populations of sage grouse and antelope, outstanding scenery, cultural sites and outstanding opportunities for solitude and primitive recreation — would outweigh the benefits of maintaining options for exploration for energy and mineral resources, continued vehicle use on 16 miles of ways and 2 miles of dead-end roads, and allocation of 5,770 AUMs (1,796 AUMs within the WSA) of available but unallocated forage.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA, concerning adequacy of the analysis in this appendix, and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The area should be designated a Wild and Scenic River rather than wilderness. Response: See discussion in Section 2, Description of the Alternatives, regarding alternatives considered but not analyzed.

Comment: The area should be combined with the adjacent Owyhee Canyonlands WSA into a single wilderness area. Response: See discussion in Section 2, Description of the Alternatives, regarding alternatives considered but not analyzed.
Table 1. Summary of Proposed Management Under Each Alternative, Upper West Little Owyhee WSA (OR-3-173)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>62,500</td>
<td>62,500</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>62,500</td>
<td>62,500</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Closed</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>16</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired(^2)</td>
<td>0</td>
<td>160</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired(^3)</td>
<td>0</td>
<td>3,840</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation(^4)</td>
<td>53,240</td>
<td>53,240</td>
<td>0</td>
</tr>
<tr>
<td>Unallocated Existing Forage Allocated (AUMs)</td>
<td>0</td>
<td>0</td>
<td>5,770</td>
</tr>
<tr>
<td>Recreation Projects Developed (Number)</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Structural Livestock Projects Developed: Fences (Miles)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

\(^1\)Except for 2 miles of roads and 16 miles of ways in the WSA, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

\(^2\)Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.

\(^3\)Upon acquisition of the mineral estate these lands would be withdrawn from mineral location and leasing.

\(^4\)This total does not include 5,420 acres already congressionally withdrawn through the Wild and Scenic River designation.
Table 2. Summary of Environmental Consequences of Alternatives, Upper West Little Owyhee WSA (OR-3-173)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 62,500 acres would result in protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 62,660 acres (assuming acquisition of 160 acres of private property) would protect and enhance existing wilderness values. The acquisition of 3,840 acres of mineral estate would further preserve wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over approximately 2,100 acres of the WSA with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy or mineral development is expected, since none is projected.</td>
<td>No impact to energy or mineral development is expected, since none is projected.</td>
<td>There would be no impact to mineral or energy development.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Riparian vegetation would be improved on 5 miles of West Little Owyhee. The 16 miles of ways would revegetate. Little or no change would occur to vegetation on the rest of the area.</td>
<td>Riparian vegetation would be improved on 5 miles of West Little Owyhee. The 16 miles of ways and 2 miles of dead-end roads would revegetate. Little or no change would occur to vegetation on the rest of the area.</td>
<td>Utilization of key forage species would increase with a corresponding decrease in ground cover. Riparian vegetation would be enhanced on 5 miles of stream, further degraded on 20 miles and little changed on 6 miles.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 62,500 acres.</td>
<td>Wildlife habitat and populations would be maintained on 62,660 acres.</td>
<td>Nesting and escape cover for sage grouse, chukars and other wildlife species would be reduced. Wildlife habitat and populations of deer, trout and nongame birds would be enhanced in the 5-mile fenced riparian area, and degraded in the 20-mile unprotected riparian area due to the additional allocation of AUMs.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Water quality would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline in more open streamside areas.</td>
<td>Water quality would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline in more open streamside areas.</td>
<td>Water quality would improve on 5 miles of stream inside the riparian exclosure, be little changed on 6 miles of stream in narrow canyons and decline on 20 miles of stream in more open areas.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Existing livestock use would remain at approximately 3,266 AUMs (1,796 AUMs within the WSA) would be foregone. Vehicle use of 16 miles of ways would be foregone.</td>
<td>Existing livestock use would remain at approximately 3,266 AUMs. A potential allocation of 5,770 AUMs (1,796 AUMs within the WSA) would be foregone. Vehicle use of 16 miles of ways and 2 miles of roads would be foregone.</td>
<td>An additional 5,770 AUMs (1,796 AUMs within the WSA) would be allocated.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>Overall recreation use would increase from 300 to approximately 450 visitor days per year.</td>
<td>Overall recreation use would increase to from 300 to approximately 450 visitor days per year.</td>
<td>Overall recreation use would remain at the current level of approximately 300 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $2,000.</td>
<td>Annual local personal income would increase by approximately $2,000.</td>
<td>Annual local personal income would increase by approximately $69,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, Upper West Little Owyhee WSA (OR-3-173)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead, beryllium</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Mercury</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Manganese</td>
<td>Entire WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Gold and silver</td>
<td>Part of WSA (not shown on map)</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Rest of WSA</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Upper West Little Owyhee WSA (OR-3-173)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot. ¹</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campbell (No. 1306)</td>
<td>14,514</td>
<td>08/15-10/15</td>
<td>16</td>
<td>1,618</td>
</tr>
<tr>
<td>Louse Canyon Community (No. 1307)</td>
<td>11,533</td>
<td>06/01-09/30</td>
<td>26</td>
<td>1,560</td>
</tr>
<tr>
<td>Star Valley Community (No. 1402)</td>
<td>6,901</td>
<td>05/15-10/30</td>
<td>1</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>32,948</td>
<td></td>
<td></td>
<td>3,266</td>
</tr>
</tbody>
</table>

¹Licensed AUMs have changed due to acquisition of State lands. AUMs previously authorized on State land as exchange of use are now authorized under BLM permit. Total livestock numbers have not changed.
<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Proposed Action</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>+5,770</td>
</tr>
<tr>
<td>RVD</td>
<td>+150</td>
<td>+150</td>
<td></td>
<td>No change</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+69,240</td>
</tr>
<tr>
<td>+1,800</td>
<td>+1,800</td>
<td>+1,800</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>+69,240</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land Studied Under Section 202 of FLPMA (Other BLM Land in WSA Studied Under Section 603 of FLPMA)
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Area
- Bureau of Land Management
- Private
- BLM Surface-State or Private Subsurface (Split Estate)
- Fort McDermitt Indian Reservation

U.S. Department of the Interior
Bureau of Land Management
Vale District
Upper West Little Owyhee WSA
OR-3-173

LAND OWNERSHIP

MAP 2
557
 Entire WSA: Moderate Potential (MA) for Mercury and Geothermal Resources (MB) for Oil and Gas, Bentonites and Zeolites

Moderate Potential (MA) for Manganese

U. S. Department of the Interior
Bureau of Land Management
Vale District
Upper West Little Owyhee WSA
OR-3-173

MODERATE OR HIGH POTENTIAL MINERAL OR ENERGY RESOURCES

MAP 4
571
Upper West Little Owyhee WSA, OR-3-173. Southern portion of WSA looking east along the Upper West Little Owyhee drainage (Louse Canyon). Within area recommended suitable under the enhanced (proposed action) alternative. September 1983.

Upper West Little Owyhee WSA, OR-3-173. Central portion of WSA looking north up Antelope Creek. Within area recommended suitable under the enhanced (proposed action) alternative. September 1983.
Appendix to the Wilderness Environmental Impact Statement for Oregon

Lookout Butte Wilderness Study Area (OR-3-194)

1. Introduction

General Description of the Study Area

The Lookout Butte Wilderness Study Area (WSA) is located in the southeast corner of Malheur County, Oregon, and the southwest corner of Owyhee County, Idaho. It lies approximately 50 miles south of Jordan Valley, Oregon, and 25 miles east of McDermitt, Nevada (see Map 1).

The WSA contains 99,600 acres of public land (see Map 2), which includes 3,950 acres of split-estate land. In addition, there are two 640-acre parcels of land owned by the State of Idaho within the boundary of the WSA.

The study area is approximately 15 miles long and 10 miles wide. The boundary of the WSA consists of high standard dirt roads, a way or low standard dirt road in the southeastern portion of the WSA and one adjacent parcel of State land. There are no dead-end roads which enter the WSA.

The WSA is a large, flat-to-gently rolling area containing several playas and four low, gently-sloped buttes. Defeat Butte (5,710 feet) in Oregon is located near the center of the WSA. Lookout Butte (5,640 feet) is 2 miles west of Defeat Butte, and an unnamed butte lies 1 mile southwest of Lookout Butte. Spring Butte (5,515 feet) is located in the northeast corner of the area in Idaho. South of Lookout Butte is Lookout Lake, the largest playa in the WSA, which is over 2 miles long and 1 mile wide. In the southwest corner, Tent Creek forms a small canyon that disappears and then reappears in a twisting configuration in the southeast corner. Spring Creek crosses the center of the eastern boundary through a shallow draw, about 3 miles south of Spring Butte. Midway along the eastern boundary, a low rim extends east from Stoney Corral. It is located along the headwaters of Toppin Creek. Except for the Buttes and a portion of Tent Creek canyon, none of the features are pronounced. Vegetation consists mainly of sagebrush, grasses and scattered herbaceous perennials.

Interrelationships

The Lookout Butte WSA lies adjacent to and directly south of the Owyhee Canyon WSA (OR-3-195/ID-16-48B) and west of the Little Owyhee River WSA (ID-16-48C). Descriptions and analyses of alternatives for these WSAs are included in the draft Owyhee Canyonlands Wilderness Environmental Impact Statement, issued by BLM’s Boise District Office in March 1984.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Whitehorse Wildlife Unit which contains 4,882 square-miles of land area. The WSA supports approximately 100 mule deer and 50 pronghorn antelope. ODFW manages the Whitehorse unit to produce 30 bucks per 100 does of mule deer and 20 bucks per 100 does of antelope. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Malheur County, Oregon and Owyhee County, Idaho have not identified any conflicts between the proposed action and County plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of
existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impacts on the area's wilderness values,
- impacts on mule deer, pronghorn antelope, sage grouse and other wildlife populations and habitat,
- impacts on energy and mineral exploration and development,
- impacts on low-level aircraft (see the Statewide Volume regarding this issue),
- impacts on split-estate lands and State-owned inholdings,
- impacts on in livestock grazing use levels and management, and
- impacts on continued use of existing ways.

The following topics were also considered, but were not analyzed for this WSA because their environmental significance or concern was not major to the decision process:

- impact of wilderness designation on Tent Creek. Tent Creek is not a perennial stream. Wilderness designation was not considered to exert a major impact on this resource.

- impact on the plant, *Downingia insignis*. *D. insignis* is not threatened or endangered and the impacts to vegetation described in this document are considered to apply to this species.

### 2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably-foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981), professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness
- no wilderness/no action (proposed action)

A partial alternative is not analyzed because there are no major resource conflicts or manageability problems that could be resolved in recommending only a portion of the WSA as suitable for wilderness.

The enhanced alternative does not include an analysis of closing the boundary roads and combining this WSA with the Owyhee River Complex because these roads provide the only access to a large portion of southeastern Malheur County (Oregon) and southwestern Owyhee County (Idaho).

### All Wilderness

Under the all wilderness alternative, all 99,600 acres would be recommended suitable as wilderness (see Map 2). This alternative assumes the 1,280 acres of state land inholdings within Idaho and the mineral estate of the 3,950 acres of split-estate land in Oregon would not be acquired. Under this alternative 48 miles of ways in the WSA would be closed.

### Energy and Mineral Development Actions

Wilderness designation would close 95,650 acres of public land within the WSA to all forms of mineral entry. A total of 3,950 acres of split-estate land in Oregon and 1,280 acres of State land in Idaho would be open to mineral exploration and development.

Exploration for energy resources would be prohibited on 95,650 acres, including oil and gas and geothermal resources, and uranium (which has a moderate potential for occurrence on 1,780 acres in the northwestern portion of the WSA). Due to a lack of direct geologic evidence indicating favorability, absence of confirmed petroleum- and geothermal-bearing formations, and an extensive and relatively thick volcanic cover, only casual exploration with no development is postulated for oil and gas and geothermal resources on the 5,230 acres of split-estate and State lands.

Exploration for mineral resources would be prohibited on 95,650 acres, including basalt aggregate, beryllium
(which has a moderate potential for occurrence on 1,400 acres in the central portion of the WSA) and silver (which has a moderate potential for occurrence on 1,060 acres in the central portion of the WSA). Due to the low demand for, and abundance of, basalt aggregate elsewhere in the region, neither exploration nor development is postulated for this mineral resource on the 5,230 acres of split-estate and State lands. As there is no direct evidence indicating favorability for the occurrence of a silver deposit, no confirmed silver deposits and no mining claims, only casual exploration with no development is postulated for this mineral resource on 420 acres of split-estate land with moderate potential for silver occurrence in the central portion of the WSA. None of the split-estate lands have moderate or high potential for the occurrence of beryllium.

Wildlife Habitat Management Actions

Habitat would be managed to support ODFW management goals and in a manner consistent with BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife developments are projected.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 2,626 AUMs within the portions of three allotments in the WSA. The season of use would remain as identified in Table 4 for the three allotments. Vehicle use for livestock management on 48 miles of ways would be precluded. Management of livestock and maintenance of 22 miles of fence would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain 28 reservoirs and three windmills.

Recreation Management Actions

The entire 99,600 acres would be closed to motorized vehicle use. Present vehicle use is limited by vehicle designation to the 48 miles of existing ways. Current recreational use is estimated to be less than 100 visitor days per year. Most of the current use utilizes vehicles for access into the area via the existing ways.

Enhanced Wilderness

Under the enhanced wilderness alternative, 99,600 acres of public land would be recommended suitable as wilderness. The 1,280 acres of State inholdings in Idaho and the mineral estate of 3,950 acres of split-estate land in Oregon would be acquired, if the owners are willing, through purchase or exchange. Assuming acquisition of the State land, the total area recommended suitable under this alternative would be 100,880 acres. Forty-eight miles of ways would be closed within the WSA (see Map 3).

Energy and Mineral Development Actions

Wilderness designation would close 100,800 acres to mineral entry. This includes the 3,950 acres of split-estate lands in Oregon and 1,280 acres of State land in Idaho.

Exploration for energy and mineral resources would be prohibited on 100,800 acres, including oil and gas and geothermal resources, basalt aggregate, uranium (which has a moderate potential for occurrence on 1,780 acres in the northwestern portion of the WSA), beryllium (which has a moderate potential for occurrence on 1,400 acres in the central portion of the WSA), and silver (which has a moderate potential for occurrence on 1,480 acres in the central portion of the WSA).

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and consistent with BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level of 2,626 AUMs in the portions of three allotments in the WSA. The season of use would remain as identified in Table 4 for the three allotments. Vehicle use for day-to-day livestock management on 48 miles of ways would be precluded. Management of livestock and maintenance of 22 miles of fences
would be conducted mainly on horseback. Mechanized heavy equipment would be used on an average of once every 5 to 10 years to maintain 28 reservoirs and three windmills.

Recreation Management Actions

The entire 100,880 acres would be closed to motorized vehicle use. Present vehicle use is limited by vehicle designation to the 48 miles of existing ways. Current recreational use is estimated to be less than 100 visitor days per year. Most of the current use utilizes vehicles for access into the area via the existing ways.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All 99,600 acres of the WSA would be open to mineral exploration and development.

Due to the lack of direct geologic evidence indicating favorability, an absence of confirmed petroleum- and geothermal-bearing formations and an extensive and fairly thick volcanic cover, only casual exploration for oil and gas and geothermal resources is projected. Likewise, as there are no confirmed deposits, no direct evidence indicating favorability and no mining claims, only casual exploration without development is postulated for uranium on 1,780 acres in the northwestern portion of the WSA.

Due to the lack of direct evidence indicating favorability, no known deposits, and no mining claims, only casual exploration with no development is postulated for beryllium on 1,400 acres and silver on 1,480 acres in the central portion of the WSA. Due to the low demand for, and abundance of, basalt aggregate elsewhere in the region, neither exploration nor development is postulated for this mineral resource.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

An additional 816 AUMs of currently available but unallocated forage would be allocated to livestock. The increase would be approximately 360 AUMs in the WSA, with the remainder being in portions of the pastures extending outside the WSA.

Brush would be controlled on 10,800 acres to increase forage for livestock. Approximately 880 of the total acreage would be within the WSA. The potential increased allocation to livestock would be 361 AUMs, with 31 of these AUMs inside the WSA.

Two reservoirs would be built to replace two existing windmills. Two additional reservoirs would be built to improve livestock distribution.

One mile of fence would be built for livestock control.

Vehicle use for livestock management and maintenance of the 23 miles of fence, 32 reservoirs and one windmill would continue on 48 miles of ways. The ways would be used 15 to 20 times per year to check livestock, spread salt and to maintain facilities.

Recreation Management Actions

Motorized vehicle use would continue to be restricted to the existing 48 miles of ways. Current recreation use is estimated to be less than 100 visitor days per year. Most of this use utilizes vehicles for access into the area via existing ways.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.
3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The WSA appears to be generally natural. The large, flat-to-gently rolling area contains several playas and four low, gently-sloped buttes each of which is over 5,500 feet in elevation.

Fifty interior unnatural features influence 14 percent of the WSA. These features consist of 28 reservoirs, three windmills, a dirt airstrip, a bladed State line (15 miles), two fences (17 miles bladed and 5 miles unbladed) and 15 ways (48 miles). These features are scattered throughout the WSA.

Unnatural features outside of the WSA that affect the naturalness of the area consist of boundary roads, a large metal water storage tank and several reservoirs. However, they do not substantially affect the area’s wilderness qualities.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The uniform shape and large size of the study area substantially enhances a visitor's ability to experience solitude.

The vast proportions of the WSA, combined with the slightly undulating terrain and the waist-high vegetation which covers it, provides sufficient screening to result in an outstanding opportunity to experience solitude. The area’s vast size also provides a sense of remoteness which adds to the feeling of solitude.

Outside sights and sound affecting the WSA's opportunity for solitude are minor and are associated with grazing management activities, traffic on boundary roads and low-level aircraft flights.

There are opportunities for hiking, backpacking, camping, hunting, photography and horseback riding. However, none of these opportunities are outstanding because the area lacks scenic quality, diversity of landforms and challenging terrain.

Special Features

Sage grouse, a candidate for Federal listing as a threatened or endangered species, occur infrequently in the WSA.

The proximity of an important cultural site to the WSA indicates a potential for similar sites within the WSA. Two surveys have been conducted within the WSA but no cultural sites have been located.

Diversity in the National Wilderness Preservation System (NWPS)

Based on the Bailey-Khchler method of classifying ecosystems, the WSA is in the Intermountain Sagebrush Province and the potential natural vegetation is sagebrush-steppe. Of the plant communities listed in the Owyhee Uplands section of the Oregon Natural Heritage Plan, the WSA contains the big sagebrush/bluebunch wheatgrass community.

There is one standard metropolitan statistical area with population over 100,000 within five hours’ driving time of the WSA: Boise, Idaho.

Energy and Mineral Development

The geology, energy and mineral resources of the Lookout Butte WSA were evaluated by interpreting existing literature, reviewing mining and mineral leasing records, and by a reconnaissance geochemical survey. Technical details of the geochemical evaluation are given in a BLM mineral resource assessment report for the Lookout Butte WSA.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume.

Table 3 shows the energy and mineral classification for the WSA. Map 4 shows where energy and mineral resources have moderate or high potential for occurrence in the WSA.

Surface geologic material in the WSA consists predominantly of Late Tertiary basalt flows and associated vent rocks. Minor unconsolidated
seds and playa deposits overlay the basalt. The basalt is underlain by Tertiary rhyolitic flows and welded tuffs which crop out in the northwest corner of the WSA. No exposed pre-Tertiary rocks are known in the WSA and it is not known what underlies the late Cenozoic cover. However, as this area is within the margins of late Paleozoic and Triassic depositional basins, Mesozoic and Paleozoic rocks may occur at unknown depths.

Energy Resources

Based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of oil and gas due to the inferred presence of Paleozoic marine sediments at depth as well as the presumed presence of thick accumulations of Tertiary fluvial and lacustrine sediments underlying the volcanic rock cover.

Also based on indirect evidence, the entire WSA is considered to have a moderate potential for the occurrence of geothermal resources suitable for direct heat use (e.g., space-heaters), due to the evidence of relatively young volcanic and tectonic activity.

Indirect evidence obtained during a reconnaissance geochemical assessment of the WSA indicates approximately 1,780 acres in the northwestern portion of the WSA, as shown on Map 4, have a moderate potential for the occurrence of uranium.

As of October 16, 1987, there were no geothermal or oil and gas leases in the WSA.

Mineral Resources

Based upon direct geologic evidence (i.e., the presence of numerous shield volcanoes, vents, and lava-flows) the entire WSA is considered to have a high potential for the occurrence of basalt aggregate material. However, due to the lack of demand, which reflects the low level of economic development and remoteness of the area, no community pits and/or material sites have been designated.

Based upon indirect geologic evidence (i.e., a reconnaissance geochemical assessment of the WSA) approximately 1,400 acres in the central portion of the WSA are considered to have a moderate potential for the occurrence of beryllium, and approximately 1,480 acres, also in the central portion of the WSA, are considered to have a moderate potential for the occurrence of silver (see Map 4).

As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

Although the predominant vegetation in the WSA is sagebrush with an understory of grasses, a variety of plant species may be found. The majority of the WSA is a Wyoming big sagebrush/bottlebrush squirreltail community with lesser amounts of grasses such as bluebunch wheatgrass, Indian ricegrass, and Sandberg's bluegrass scattered throughout. Other species in the area consist of phlox, buckwheat, locoweed, spiny hopsage and other herbaceous annuals and perennials. Minor vegetation communities within the WSA include low sagebrush/bottlebrush squirreltail and low sagebrush/Idaho fescue. Small, relatively unvegetated playas also exist within the WSA. These playas have not been inventoried for Lepidium davisii (Davis' peppergrass) and may support stands of this Federal candidate plant species. No other threatened or endangered plants are known or suspected to occur in the WSA.

The majority of the vegetation is in an early seral stage with a few areas of mid-seral stage. Because of the accessibility of the entire area to livestock grazing, very few pockets of the potential natural community exist.

Wildlife

Pronghorn antelope and mule deer make limited use of the WSA. Pronghorn use is restricted to the late spring to autumn period due to severe winter conditions within the study area. Mule deer inhabit many of the canyons in adjacent areas; however, the lack of topographic features and the nearly homogeneous stands of Wyoming big sagebrush, which predominate in the WSA, are not favored habitat for either big game species.

Sage grouse, a Federal candidate for listing under the Endangered Species Act, are infrequently found in the WSA. The northeastern portion, near Spring Butte, contains some of the better habitat. Sage grouse prefer habitat that is a mosaic of low and tall sagebrush, especially where grass/sedge meadows are also present. The Lookout Butte WSA lacks the meadows and, for the most part, the low sagebrush component.

Raptorial birds inhabit the deep canyons to the west, north and east of the WSA. Incidental excursions by raptors searching for prey are made into the study
area but very little nesting occurs due to the absence of suitable topography.

**Watershed**

There are no perennial streams or springs in the WSA.

**Livestock Grazing**

Portions of three grazing allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments (among the features listed in the naturalness section) include 22 miles of fence, 28 reservoirs and three windmills.

Livestock operators use motor vehicles on ways approximately 15 to 20 times per year for fence and reservoir inspection and maintenance, to check on livestock and spread salt. Due to topography and the lack of vehicular access to parts of the WSA, some of the livestock management is accomplished on horseback.

**Recreation Use**

Occasional hunting for deer and antelope occurs in the study area. However, game populations are small compared with nearby areas, and hunting pressure is light. Vehicle use is also light due to a lack of either attractive features or activities. Total recreation use is less than 100 visitor days per year.

**Local Personal Income**

Livestock use at the current level of 2,626 AUMs and recreation use totaling less than 100 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $31,512 for livestock grazing and $1,200 related to recreation use of the WSA for an overall total of $32,712. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

**4. Environmental Consequences**

**Introduction**

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

**Impacts of the Alternatives**

**All Wilderness**

Recommended suitable for wilderness: 99,600 acres. Recommended nonsuitable for wilderness: 0 acres.

**Impacts on Wilderness Values**

All of the WSA would be designated wilderness, and wilderness values within the entire 99,600 acres would be protected by legislative mandate. Wilderness values of naturalness and solitude would be preserved. Special features such as sage grouse would also be protected.

**Naturalness**

The naturalness of the area’s vast plateaus (86 percent of the WSA is pristine, uninfluenced by unnatural features) would be improved by prohibiting motorized vehicle use. Closure of 48 miles of ways, which influence approximately 6,800 acres (almost seven percent of the WSA) would allow the ways to revegetate. Within three to five growing seasons, the two parallel tracks would revegetate making the ways unnoticeable. Ways accessing range projects may receive periodic use by heavy equipment every 5 to 10 years to allow maintenance of these projects. However, this infrequent use would not prevent the ways from revegetating.

**Solitude**

Opportunities for solitude provided by the area’s large size would be further improved through the elimination of motorized use on the 48 miles of ways. Vehicles would be limited to the boundary roads. This reduction in vehicular access would provide a vast core area for people to hike into and experience solitude with no disturbance from vehicle use.
Primitive and Unconfined Recreation

Closure of the 48 miles of ways to motorized use would only slightly increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography and sightseeing experiences would slightly improve with the removal of vehicles and the rehabilitation of the ways. A more natural, primitive, wild setting would be provided. However, opportunities would still be limited due to a lack of attractive features, diversity and challenge.

Special Features

Eliminating motorized vehicle use on the 48 miles of ways would reduce minor seasonal disturbance of sage grouse.

Conclusion: Wilderness designation of the entire 99,600 acres within the Lookout Butte WSA would result in protection and enhancement of existing wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 95,650 acres within the WSA to mineral entry. A total of 3,950 acres of split-estate lands in Oregon and 1,280 acres of State land in Idaho would be open to mineral exploration and development.

Energy Development

Exploration for energy resources would be precluded on 95,650 acres, including oil and gas and geothermal resources, and uranium (which has a moderate potential for occurrence, on 1,780 acres on the northwestern portion of the WSA). Due to a lack of geologic evidence sufficient to justify an extensive exploration/development program for oil and gas and geothermal resources, only casual exploration without development is projected for these energy resources on all lands within the WSA boundary.

Conclusion: No impact on energy development is expected.

Mineral Development

Projected exploration for mineral resources would be precluded on 95,650 acres, including basalt aggregate; beryllium, which has a moderate potential for occurrence on 1,400 acres in the central portion of the WSA; and silver, which has a moderate potential for occurrence on 1,060 acres in the central portion of the WSA. Due to a lack of demand and presence of other sources of material in the region, neither exploration for, nor development of, basalt aggregate is projected on the 3,950 acres of split-estate and 1,280 acres of State lands, which would be available for mineral activities under this alternative. As there is insufficient geologic evidence to justify an extensive exploration/development program, only casual exploration for silver is projected on 420 acres of split-estate land with a moderate potential for occurrence in the central portion of the WSA.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Composition and ecological status of vegetation would not change under this alternative. Utilization of key forage species would remain at approximately 60 percent. The 48 miles of ways would revegetate in three to five growing seasons.

Conclusion: The 48 miles of ways would revegetate. Little or no change would take place to vegetation in the remainder of the area.

Impacts on Wildlife

Wildlife habitat for approximately 100 mule deer, 50 pronghorn antelope and a small number of sage grouse would be slightly improved under wilderness designation as a result of closure of 48 miles of ways. All wildlife present would benefit from reduced human disturbance. Adequate forage and cover would be ensured in the preparation of livestock allotment management plan goals.

Conclusion: Wildlife habitat and populations would be maintained on 99,600 acres designated wilderness.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 2,626 AUMs within the portions of the three allotments in the WSA. Wilderness designation would preclude the allocation of an additional 816 AUMs of currently available but unallocated forage in affected pastures because of the adverse impacts upon wilderness values that would result from increased grazing pressure (e.g. a decrease in residual ground cover and increased soil erosion due to trampling). Increases would not be allowed in pastures entirely or partially within the wilderness area.
Vehicle use for livestock management and facility inspection/maintenance on 48 miles of ways would be precluded under wilderness designation. This would result in some inconvenience and additional expense to livestock operators. Heavy equipment would be used once every 5 to 10 years for maintenance of the 28 reservoirs and three windmills. This periodic infrequent use would involve 30 miles of ways and 10 miles of cross-country travel.

Construction of four reservoirs (two of which would replace two windmills) and 1 mile of fence, to improve livestock distribution, would be precluded.

Brush control on 880 acres within the WSA to produce enough forage to support an additional 31 AUMs would not be allowed under wilderness designation. An additional 330 AUMs, resulting from a 9,920-acre brush control project adjacent to the WSA, would also be foregone because the additional livestock would drift into the wilderness area. A potential, total allocation of 361 AUMs would be precluded because of the potential adverse impacts to wilderness values (e.g. reduction in residual ground cover and increased erosion).

**Conclusion:** Livestock grazing use would continue at the current use level of 2,626 AUMs within portions of the three allotments in the WSA. An increased allocation of 816 AUMs of currently available forage and an additional allocation of 361 AUMs from projects would be foregone. Vehicle use of 48 miles of ways would be precluded with some inconvenience and increased costs to livestock operators.

**Impacts on Recreation Use**

Recreation use levels, which are currently less than 100 visitor days per year, would not be greatly affected by wilderness designation; recreation of a primitive and unconfined nature would increase slightly, and motorized recreation would be eliminated.

**Conclusion:** There would be little or no change to recreation use levels.

**Impacts on Local Personal Income**

Livestock grazing would remain at 2,626 AUMs. Overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $33,000.

**Enhanced Wilderness**

**Recommended Suitable for Wilderness:** 100,800 acres (assuming acquisition of 1,280 acres of state land)

**Recommended Nonsuitable for Wilderness:** 0 acres

**Impacts on Wilderness Values**

The enhanced wilderness alternative would add 100,800 acres to the NWPS. This includes acquisition of the mineral estate on 3,950 acres of split-estate as well as 1,280 acres of State land. Forty-eight miles of ways would be closed to vehicle use. All the WSA would be designated wilderness, and wilderness values would be protected by legislative mandate. Acquisition of the mineral estate and State lands would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

**Naturalness**

The effects on naturalness would be similar to the all wilderness alternative except that this enhanced wilderness alternative also includes the acquisition of 3,950 acres of mineral estate and 1,280 acres of State land. These acquisitions would preclude any adverse impacts from mineral entry and exploration, thus preserving the naturalness of the area.

Closing 48 miles of ways would allow revegetation and eliminate their unnatural influence on approximately 6,800 acres, the same as under the all wilderness alternative.

**Solitude**

The effects on solitude would be similar to the all wilderness alternative except for the additional preservation of opportunities for solitude caused by mineral estate and State land acquisitions. Precluding the projected mineral exploration on 3,950 acres of mineral estate and 1,280 acres of State land would increase the size of the area where wilderness visitor's solitude would not be disturbed by vehicle use associated with mineral exploration.
Primitive and Unconfined Recreation

The same increased opportunities for primitive and unconfined recreation resulting from way closures identified under the all wilderness alternative would occur under this alternative. In addition, acquisition of 3,950 acres of mineral estate and 1,280 acres of State land would prevent the projected mineral exploration, thus preserving a natural setting for primitive recreational pursuits.

Special Features

The impacts to special features would be the same as for the all wilderness alternative except that the acquisition of the 3,950 acres of mineral estate and 1,280 acres of State land would prevent seasonal disturbances to sage grouse from casual exploration activities.

Conclusion: Wilderness designation of 100,800 acres would protect and enhance existing wilderness values. The acquisition of 3,950 acres of mineral estate and the closure of 48 miles of ways would further preserve wilderness values.

Impacts on Energy and Mineral Development

Wilderness designation would close 100,800 acres within the WSA to mineral entry (assuming the acquisition of 3,950 acres of mineral estate and 1,280 acres of State land).

Energy Development

Exploration for energy resources would be precluded on 100,800 acres, including oil and gas and geothermal resources (which have a moderate potential for occurrence, based on indirect evidence), and uranium (which has a moderate potential for occurrence, based on indirect evidence, on 1,780 acres in the northwestern portion of the WSA). However, due to the lack of geologic evidence to justify an extensive exploration/development program, only casual exploration without development is expected without acquisition.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration for mineral resources would be precluded on 100,800 acres, including basalt aggregate, beryllium (which has a moderate potential for occurrence on 1,400 acres in the central portion of the WSA), and silver (which has a moderate potential for occurrence on 1,480 acres in the central portion of the WSA). However, due to a lack of demand and the presence of other sources of basalt aggregate in the area, neither exploration nor development is projected. As there is insufficient geologic evidence to justify an extensive exploration/development program for beryllium and silver, only casual exploration with no development is projected for these resources.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Composition and ecological status of vegetation would not change under this alternative. Utilization of key forage species would remain at approximately 60 percent. The 48 miles of ways would revegetate in three to five growing seasons.

Conclusion: The 48 miles of ways would revegetate. Little or no change would take place to vegetation in the remainder of the area.

Impacts on Wildlife

Wildlife habitat for approximately 100 mule deer, 50 pronghorn antelope and a small number of sage grouse would be slightly improved under wilderness designation as a result of closure to vehicle access. Acquisition of the mineral estate and state lands would prevent periodic disturbance from projected energy and mineral exploration. All wildlife present would benefit from the lower level of human disturbance. Adequate forage and cover would be ensured in the preparation of livestock allotment management plan goals.

Conclusion: Wildlife habitat and populations would be maintained on 100,800 acres designated wilderness.

Impacts on Livestock Grazing

Livestock use would continue at the current level of 2,626 AUMs within the portions of the three allotments in the WSA. Wilderness designation would preclude the allocation of an additional 816 AUMs of currently available but unallocated forage in affected pastures because of the potential impact upon wilderness values that would result from increased grazing pressure (e.g. a decrease in residual ground cover and increased soil erosion due to trampling). Increases would not be allowed in pastures entirely or partially within the wilderness area.
Vehicle use for livestock management and facility inspection/maintenance on 48 miles of ways would be precluded, resulting in some inconvenience and additional expense to livestock operators. Some of the area is presently inaccessible, and some of the livestock management is currently accomplished by horseback. Heavy equipment would be used once every 5 to 10 years for maintenance of 28 reservoirs and three windmills. This periodic, infrequent use would involve 30 miles of ways and 10 miles of cross-country travel.

Construction of four reservoirs (two of which would replace two windmills) and 1 mile of fence, to improve livestock distribution, would be precluded.

Brush control on 880 acres within the WSA to produce enough forage to support an additional 31 AUMs would not be allowed under wilderness designation. An additional 330 AUMs, resulting from a 9,920-acre brush control project adjacent to the WSA, would also be foregone because the additional livestock would drift into the wilderness area. A potential, total allocation of 361 AUMs would be precluded because of the potential adverse impacts to wilderness values that would result from increased grazing pressure (e.g., reduction in residual ground cover and increased erosion).

Conclusion: Livestock grazing use would continue at the current use level of 2,626 AUMs within portions of the three allotments in the WSA. An increased allocation of 816 AUMs of currently available forage, and an additional allocation of 361 AUMs from projects, would be foregone. Vehicle use of 48 miles of ways would be precluded with some inconvenience and increased costs to livestock operators.

Impacts on Recreation Use

Recreation use levels, which are currently less than 100 visitor days per year, would not be greatly affected by wilderness designation. Acquisition of the mineral estate and state lands would ensure the preservation of current primitive recreation opportunities and use levels by precluding the projected mineral exploration activities that would otherwise disturb these opportunities. Recreation of a primitive and unconfined nature would increase slightly, and motorized recreation would be eliminated.

Conclusion: There would be little or no change to recreation use levels.

Impacts on Local Personal Income

Livestock grazing would remain at 2,626 AUMs. Overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $33,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 99,600 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 99,600 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, and the area's special feature would be subject to the effects of the projected management actions. Projected actions include casual energy and mineral exploration, continued vehicle use for livestock management and facilities inspection and maintenance, an increased allocation of 360 AUMs of livestock forage currently available but unallocated, an 880-acre brush-control project and the associated allocation of 31 AUMs, the construction of 1 mile of fence and four reservoirs, and continued recreational vehicle use limited to existing ways.

Naturalness

Continued vehicle use on 48 miles of ways would maintain the impact of the vehicle tracks upon naturalness on approximately 6,800 acres (7 percent) of the WSA.

Casual mineral exploration would cause short-term and localized impacts to the area's naturalness. Minor surface disturbance (exploration pits) is expected. Required reclamation and natural revegetation would leave little evidence of disturbance to naturalness in the long term.
The allocation of an additional 391 AUMs (including 31 AUMs associated with the proposed brush control) would increase trampling around water sources and increase utilization of forage, resulting in a more grazed appearance with less residual cover.

Construction of 1 mile of fence and four reservoirs would disturb a total of 9 acres and visually influence 420 acres. The 880-acre brush-control project would alter the appearance of vegetation and visually influence 3,260 acres (three percent) within the WSA.

**Solitude**

Continued vehicle use on 48 miles of ways and human activities associated with mineral exploration and implementation of projected range projects would cause short-term local impairment of solitude opportunities adjacent to the activity.

**Primitive and Unconfined Recreation**

Vehicle use would continue to be limited to existing ways. Such use would continue to intrude upon primitive and unconfined recreation opportunities in the vicinity of the 48 miles of ways.

Mineral exploration, implementation of proposed range projects and the allocation of 391 AUMs of forage would reduce primitive recreation opportunities. Mineral exploration may result in small areas of surface disturbance and would require vehicle access. Additional livestock use would increase vegetation removal, trampling and fecal deposits especially in the areas of livestock concentration (i.e., around water sources), which are places recreationists may utilize.

**Special Features**

Sage grouse would be affected by habitat disturbance resulting from activities such as mineral exploration, increased forage allocations and the implementation of range projects. Continued vehicle use of existing ways would also pose minor seasonal disturbance of sage grouse.

**Conclusion:** In the absence of wilderness designation, projected activities would impair wilderness values over approximately 3,680 acres, with further declines from other potential uses over the long term.

**Impacts on Energy and Mineral Development**

All 95,650 acres within the WSA would be open to mineral entry. A total of 3,950 acres of split-estate lands in Oregon and 1,280 acres of State land in Idaho would remain open to mineral exploration and development.

**Energy Development**

Projected exploration for oil and gas and geothermal resources would occur throughout all 99,600 acres, plus 1,280 acres of State lands. Projected exploration for uranium, which has a moderate potential for occurrence on 1,780 acres in the northwestern portion of the WSA, would also occur. Only casual exploration without development is projected for these energy resources.

**Conclusion:** There would be no impact on energy development.

**Mineral Development**

Casual exploration, without development, is projected for basalt aggregate throughout the WSA. Projected exploration would occur for beryllium (which has a moderate potential for occurrence on 1,400 acres in the central portion of the WSA) and for silver (which has a moderate potential for occurrence on 1,480 acres, also in the central portion of the WSA). Only casual exploration, without development, is projected for these mineral resources.

**Conclusion:** There would be no impact on mineral development.

**Impacts on Vegetation**

Brush would be removed from 880 acres by burning. Four reservoirs would be constructed, removing vegetation from approximately eight acres. Depending on timing of grazing, larger bunchgrasses would be weakened and disappear on approximately 10 to 20 acres around each reservoir. Little or no change would take place to vegetative composition or ecological condition on the rest of the WSA. Utilization of key forage species would increase from 35 percent to approximately 50 percent as a result of allocating 360 AUMs currently available but not presently allocated, and 31 AUMs made available by brush control.

**Conclusion:** Brush would be removed from 880 acres and construction of four reservoirs would remove vegetation from 8 acres. Utilization of key forage species would increase overall, and the bunchgrass component would be reduced on 40 to 80 total acres in the vicinity of the four proposed reservoirs.
Impacts on Wildlife

Casual mineral exploration would cause a slight disturbance to wildlife, including sage grouse. The proposed 880-acre brush control project would improve habitat variety for wildlife. Sagebrush-dependent species such as sage grouse would be displaced to adjoining habitats with brush cover. Reservoir development would provide additional water for all species, especially for pronghorn antelope.

Conclusion: Wildlife populations of game and nongame species would sustain minor and temporary levels of harassment. Proposed actions would benefit wildlife by providing new water sources and additional habitat variety. Nesting and escape cover would be reduced.

Impacts on Livestock Grazing

Presently available but unallocated forage would be allocated resulting in an increase in livestock forage allocation of 816 AUMs within affected pastures. Approximately 360 of the AUMs are within the WSA with the remainder being in portions of pastures adjacent to the WSA. Brush would be controlled on 10,800 acres making an additional 361 AUMs available for allocation to livestock. Of this, 880 acres and 31 of the AUMs would be within the WSA.

Two reservoirs would be built to replace two windmills to reduce maintenance costs. Two additional reservoirs and 1 mile of fence would be built to improve livestock distribution and management.

Vehicle use for livestock management and facility inspection/maintenance of 23 miles of fence, 32 reservoirs and one windmill would continue on 48 miles of ways, with minor additional use for the new facilities.

Conclusion: An additional allocation of 816 AUMs of additional forage would be realized. An additional 361 AUMs would be allocated to livestock from projects. Four new reservoirs and 1 mile of fence would facilitate livestock management.

Impacts on Recreation Use

Motorized recreation use would continue on 48 miles of ways. Surface disturbance and disruption of wildlife from projected energy and mineral exploration and range projects would slightly disturb the natural setting for recreational activities. The proposed range projects would slightly increase antelope populations, thus slightly improving opportunities for hunting and observing this species. The area's overall recreation use level would not measurably change.

Conclusion: The area's recreation use level of less than 100 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would increase by 1,177 AUMs. Overall recreation use would remain at less than 100 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $14,124 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $14,000.

Unavoidable Adverse Impact of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), projected mineral exploration, livestock grazing increases, vegetative manipulation and fence and reservoir construction would lead to unavoidable adverse impacts to wilderness values as a result of 900 acres of surface disturbance and vegetation alteration which would visually influence approximately 3,680 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the proposed action, existing short-term uses would continue and future development options would remain open. Long-term productivity of wilderness values would be directly lost on 900 acres and visually impaired on 3,680 acres due to surface disturbance and vegetation alteration from projected mineral exploration, livestock grazing increases and range projects. Further declines in wilderness values due to other uses would be possible over the long term.
6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM's wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The wilderness values of Tent Creek have not been adequately addressed. Response: Tent Creek is an intermittent stream and has no permanent fish populations so its wilderness and wildlife habitat values are limited. Riparian habitats are lacking within the WSA because there are no perennial streams or springs within its boundaries.

Comment: To protect the natural resources of the WSA, more than the enhanced alternative is needed (i.e. more upland area should be added). Response: Most of the WSA is composed of upland habitat and includes four low-relief buttes. The large core area of the WSA would be sufficient to protect natural resources. Refer to Section 1, Introduction regarding General Description of the Study Area.

Comment: This WSA should be added to the Owyhee Canyonlands Wilderness. Response: The WSA is not combined with adjacent WSAs because the boundary road provides the only access to a vast area in southeast Oregon and southwest Idaho and will not be considered for closure. See Section 2, Description of the Alternatives regarding alternatives not analyzed.

Comment: Downingia insignis should be addressed in the EIS appendix because it occurs near the WSA boundary and probably also occurs within the WSA. Response: D. insignis is considered to be a sensitive species in Oregon (having limited distribution in Oregon, but wider distribution and greater abundance in other states). Since this species is not considered to be a Federal candidate for listing under the Endangered Species Act, it is not specifically discussed in this EIS.
<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>99,600</td>
<td>99,600</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation&lt;sup&gt;1&lt;/sup&gt;</td>
<td>99,600</td>
<td>99,600</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>48</td>
<td>48</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Mineral Estate Acquired&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0</td>
<td>3,950</td>
<td>0</td>
</tr>
<tr>
<td>Acres of State Land Acquired&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0</td>
<td>1,280</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>95,650</td>
<td>95,650</td>
<td>0</td>
</tr>
</tbody>
</table>

**Structural Livestock Projects Developed:**

- Reservoirs (Number)<sup>4</sup> | 0 | 0 | 4 |
- Fences (Miles) | 0 | 0 | 1 |

**Nonstructural Livestock Projects Developed:**

- Vegetation Manipulation (Acres) | 0 | 0 | 880 |
- Increased Forage Allocation from Projects (AUMs)<sup>5</sup> | 0 | 0 | 361 |
- Unallocated Existing Forage Allocated (AUMs)<sup>6</sup> | 0 | 0 | 816 |

<sup>1</sup>Except for 48 miles of ways, all of the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

<sup>2</sup>Upon acquisition of the mineral estate, these lands would be withdrawn from mineral location and leasing.

<sup>3</sup>Upon acquisition, these lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.

<sup>4</sup>Two of the reservoirs proposed under the No Wilderness alternative would replace two windmills.

<sup>5</sup>Approximately 30 of the AUMs that would be created by brush control under the No Wilderness alternative are within the WSA.

<sup>6</sup>Approximately 360 of the AUMs allocated under the No Wilderness alternative are within the WSA.
<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/No Action (Proposed Alternative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 99,600 acres and the closure of 48 miles of ways would result in protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 100,880 acres and the closure of 48 miles of ways would protect and enhance wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would impair wilderness values on approximately 3,680 acres, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy or mineral development is expected.</td>
<td>No impact to energy or mineral development is expected.</td>
<td>No impact to energy or mineral development is expected.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Forty-eight miles of ways would revegetate. Little or no change would occur to vegetation on the remainder of the area.</td>
<td>Forty-eight miles of ways would revegetate. Little or no change would occur to vegetation on the remainder of the area.</td>
<td>Brush would be removed from 880 acres. Utilization of key forage species would increase overall from 35 percent to 50 percent. The bunchgrass component would be reduced on 40 to 80 acres.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained on 99,600 acres designated wilderness.</td>
<td>Wildlife habitat and populations would be maintained on 100,800 acres designated wilderness.</td>
<td>Wildlife populations of game and nongame species would sustain minor and temporary levels of harassment. Proposed actions would benefit wildlife by providing new water sources and adding habitat variety.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Closure of 48 miles of ways would cause inconvenience and a slight increase in costs to livestock operators. An increased allocation of 816 AUMs of currently available forage and an additional allocation of 361 AUMs from projects would be foregone.</td>
<td>Closure of 48 miles of ways would cause inconvenience and a slight increase in costs to livestock operators. An increased allocation of 816 AUMs of currently available forage and an additional allocation of 361 AUMs from projects would be foregone.</td>
<td>An additional allocation of 816 AUMs of available forage would be realized. An additional 361 AUMs would be allocated to livestock from projects. Construction of four reservoirs and 1 mile of fence would facilitate livestock management.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>There would be little or no change to the recreation use level of less than 100 visitor days per year.</td>
<td>There would be little or no change to the recreation use level of less than 100 visitor days per year.</td>
<td>There would be little or no change to the recreation use level of less than 100 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $33,000.</td>
<td>Local personal income would remain at approximately $33,000.</td>
<td>Annual local personal income would increase by approximately $14,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy and Mineral Potential, Lookout Butte WSA (OR-3-194)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium, Silver</td>
<td>See map 4</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Uranium</td>
<td>See map 4</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Sodium, Potassium</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Basalt Aggregate</td>
<td>Entire WSA</td>
<td>H</td>
<td>C</td>
</tr>
</tbody>
</table>

**Legend:**

**Level of Potential**

- O - No indication for accumulations of energy/mineral resource
- L - Low potential for accumulations of energy/mineral resource
- M - Moderate potential for accumulations of energy/mineral resource
- H - High potential for accumulations of energy/mineral resource

**Level of Certainty**

- A - Insufficient data or no direct evidence
- B - Indirect evidence available
- C - Direct evidence but quantitatively minimal
- D - Abundant direct and indirect evidence

### Table 4. Existing Livestock Use, Lookout Butte WSA (OR-3-194)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Star Valley (No. 1402)</td>
<td>6,901</td>
<td>03/01-10/15</td>
<td>36</td>
<td>1,522</td>
</tr>
<tr>
<td>Tent Creek (No. 0661)</td>
<td>1,700</td>
<td>03/01-02/28</td>
<td>33</td>
<td>561</td>
</tr>
<tr>
<td>&quot;45&quot; (No. 0629)</td>
<td>2,363¹</td>
<td>03/01-02/28</td>
<td>23</td>
<td>543</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>10,964</strong></td>
<td><strong>N/A</strong></td>
<td><strong>N/A</strong></td>
<td><strong>2,626</strong></td>
</tr>
</tbody>
</table>

¹Includes 211 AUMs exchange of use.
Table 5. Effects of Alternatives on Local Personal Income, Lookout Butte WSA (OR-3-194) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No change</td>
<td>No change</td>
<td>+1,177</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>+14,124</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>+14,124</td>
</tr>
</tbody>
</table>
U.S. Department of the Interior
Bureau of Land Management
Vale District
Lookout Butte WSA
OR-3-194

LOCATION MAP

MAP 1
T39S
T41S
T13S
6-48B
BLM
Land
in
WSA
Studied
Under
Section
603
of
FLPMA
Wilderness
Study
Area
Boundary
Boundary
of
Adjacent
Wilderness
Study
Areas
Bureau
of
Land
Management
Private
BLM
Surface-State
or
Private
Subsurface
(Split
Estate)
U.S.
Department
of
the
Interior
Bureau
of
Land
Management
Vale
District
Lookout
Butte
WSA
OR-3-194
LAND
OWNERSHIP
LEGEND

- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Recommended Suitable for Wilderness
- Non-Federal Land within Recommended Wilderness
- Non-Federal Minerals (Split Estate) within Area Recommended for Wilderness

U.S. Department of the Interior
Bureau of Land Management
Vale District

Lookout Butte WSA
OR-3-194

ENHANCED ALTERNATIVE

MAP 3

597
Entire WSA:
High Potential (HC) for Aggregates (Mineral Material)
Moderate Potential (MB) for Oil, Gas and Geothermal Resources

U.S. Department of the Interior
Bureau of Land Management
Vale District

Lookout Butte WSA
OR-3-194
MODERATE OR HIGH POTENTIAL
MINERAL OR ENERGY RESOURCES
Lookout Butte WSA, OR-3-194. Typical low sage community covering most of the WSA. Photo taken near the western WSA boundary, looking south. May 1985.

Appendix to the Wilderness Environmental Impact Statement for Oregon

McGraw Creek Wilderness Study Area (OR-6-1)

1. Introduction

General Description of Study Area

The Oregon Wilderness Act of 1984 designated 968 acres of the McGraw Creek Wilderness Study Area (WSA) as wilderness. A total of 497 acres was not designated nor was it released from further study. The U.S. District Court for the Eastern District of California issued a decision on April 18, 1985 on the Sierra Club vs. Watt case that held it is within the discretion of the Secretary of the Interior to study areas less than 5,000 acres under the authority of Section 202 of FLPMA. Under this authority, BLM determined to include the McGraw Creek WSA for further study.

The McGraw Creek Wilderness Study Area (OR-6-1) is located 80 miles northeast of Baker, Oregon, and 23 miles northeast of Halfway, Oregon, in Wallowa County (see Map 1).

The WSA contains 497 acres of public land. There are no private inholdings and the subsurface mineral estate is Federally owned. Hells Canyon Reservoir on the Snake River forms the eastern boundary. The Hells Canyon Wilderness forms the northern boundary, while private land (patented mining claims) and other BLM lands (which are in an unnatural condition and were eliminated from wilderness consideration during the inventory phase) adjoin the WSA on the south and west. The WSA is approximately 2.5 miles in length and in width varies from 50 feet to 0.75 mile (see Map 2).

The area is characterized by very steep, deeply-dissected, narrow, rocky canyons. Elevation increases from 1,600 feet at the reservoir to 4,960 feet at the western boundary. The northern forks of Copper Creek are the only perennial streams.

There are no roads or ways in the WSA. A trail runs north along the reservoir on the eastern boundary. Both forest and rangeland plant communities occur in this area with forest sections (Douglas fir, white and grand fir, and ponderosa pine) found on the higher, cooler, moister north aspects and in the upper portions of Copper Creek. The upper portion of Copper Creek also supports dense, deciduous riparian vegetation in a mature to climax ecological stage. Rangeland plant communities consist primarily of grasses and scattered shrubs.

Interrelationships

The WSA is bordered on the north by the Hells Canyon Wilderness within the Hells Canyon National Recreation Area which extends northward approximately 50 miles along the west side of the Snake River in Oregon.

The WSA is a part of a chain containing two other WSAs bordering the impounded Snake River along the Oregon/Idaho stateline above the Hells Canyon, Oxbow and Brownlee Reservoirs. The three WSAs are not contiguous, but do represent the same geographic locale of the Snake River Breaks.

The WSA is located within the Oregon Department of Fish and Wildlife (ODFW) Pine Creek Wildlife Unit, which contains 366 square miles of land area. The WSA supports a summer population of 10 to 15 mule deer and a winter population of 40 to 50 mule deer. The WSA supports about 5 to 10 elk during the winter months, depending on the severity of the winter. ODFW manages the Pine Creek Unit to produce 10 bucks per 100 does of mule deer and five bulls per 100 cows of elk. A proposal to reintroduce Rocky Mountain bighorn sheep immediately outside the boundaries of the WSA is included in the Oregon Bighorn Sheep Management Plan (1986). The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.
The McGraw Creek WSA (497 acres) lies within the 8,537-acre Homestead Area of Critical Environmental Concern (ACEC). The ACEC was established to protect outstanding, scenic, wildlife and vegetation qualities, including bald eagle and sensitive plant habitat.

Special management provisions to protect this area from resource development impacts include:

- seasonal restrictions on oil and gas exploration and development.
- vehicle use limited to designated roads and ways.
- restrictions on timber harvest methods.

These restrictions would continue to apply within the WSA, as it is entirely within the Homestead ACEC, whether or not the area is designated wilderness.

The entire WSA falls within lands which were ceded to the U.S. Government by the Nez Perce Indian Tribe by ratified treaty. This treaty reserved rights for hunting, fishing and gathering in usual and accustomed places and grazing livestock on unclaimed land.

Wallowa County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory, study and EIS planning, scoping and public review process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on wilderness values,
- impact on timber harvest in the WSA,
- impact on plant species of special interest,
- impact on energy and mineral exploration and development,
- impact on small populations of mule deer, elk, black bear and other wildlife species and their habitat,
- impact on livestock grazing use levels, and
- impact on recreation use levels in the WSA.

No other issues specific to this WSA were raised by the BLM or the public.

2. Description of the Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably-foreseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for the alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- no wilderness/no action (proposed action)

A partial alternative is not analyzed because there are no major resource conflicts that would warrant recommending only a part of the WSA as suitable for wilderness. An enhanced alternative is not analyzed because there are no opportunities for enhancement, such as boundary expansions, road closures, or acquisition of inholdings.

All Wilderness

Under the all wilderness alternative, 497 acres would be recommended suitable as wilderness (see Map 2).

Energy and Mineral Development Actions

Wilderness designation would close all 497 acres within the WSA to all forms of mineral entry. Exploration and development of copper, gold and silver (which have a moderate potential for occurrence over the entire WSA) would be prohibited. No exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 6 AUMs within the single allotment in the WSA. The season of use would remain as identified in Table 4 for the allotment. No proposed or existing livestock improvements are within the WSA. Management of livestock would be conducted by horseback or foot.

Recreation Management Actions

The entire 497 acres would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to existing roads and vehicle trails, of which there are none in the WSA. Current recreational use is estimated to be approximately 400 visitor days per year.

No Wilderness/No Action (Proposed Action)

Energy and Mineral Development Actions

All 497 acres would be open to mineral entry. No exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

Exploration for copper, gold and silver is postulated to occur throughout the WSA. This effort most likely would consist of surface examination and sampling followed by core drilling using a track-mounted drill. These tests may involve up to 25 drill sites. The resulting surface disturbance is expected to total 11 acres, including 4 miles of new road construction in steep terrain. Exploration at two sites along the southern border is postulated to involve the development of two short drifts (underground excavations) which would result in surface disturbance of about one acre. Discovery of an economic copper, gold, and silver deposit is not expected at these two sites.

It is postulated that an economic copper, gold and silver deposit would be discovered in the vicinity of the known copper occurrence, located at the eastern end of the WSA near Hells Canyon Reservoir. Development of this deposit is projected to disturb 18 acres of surface. Projected development actions include development drilling, an open-pit/underground mine complex, waste rock dump and one mile of haul road. The ore would probably be hauled to an existing mill located across the Snake River in Idaho. Total surface disturbance from all phases of exploration and development is projected to be 30 acres.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations and to meet ODFW species goals for the area. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock grazing use would continue at the current level and season of use as identified in Table 4. No livestock improvement projects are proposed.

Recreation Management Actions

Vehicle use would continue to be restricted to existing roads and ways of which there are none in the WSA. Exploration roads would be limited to exploration only and closed and reclaimed after activity is completed. The haul road to the projected open pit mine would be limited to mine operator use only. Current recreational use is estimated to be approximately 400 visitor days per year.
Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

The unnatural features within the McGraw Creek WSA are substantially unnoticeable. A hiking trail within the area influences a narrow zone and its impacts are minimal.

The greatest impacts are from 15 off-site features that affect 90 percent of the area. The Hells Canyon Reservoir and Idaho Power access road, opposite the WSA on its east side, are the dominant features. Although off-site, these have significant influences upon the south- and east-facing slopes above Copper Creek. This slope directly faces several major intrusions in addition to the road and reservoir. Some of these intrusions include mining activities and timber harvest areas with associated access roads, the Klindschmidt Grade and the Hess Road.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The WSA adjoins a wilderness area that possesses outstanding opportunities for solitude and primitive recreation. However, the WSA is topographically separated from the wilderness area by a ridgeline and lacks, by itself, outstanding opportunities for either solitude or primitive recreation. A limited amount of topographic and vegetative screening within the WSA provides some opportunities for solitude, but these areas are small, scattered and too few to be considered outstanding. The WSA's small size and narrow shape also contribute to the lack of solitude.

The small size and narrow irregular shape of the WSA limit primitive recreational opportunities. Activities available include day hikes, hunting, photography, wildlife viewing, sightseeing and horseback riding. These activities are less than outstanding because of the restricted area.

Special Features

The deeply-incised Snake River forms the eastern boundary of the WSA for 0.5 mile. The canyon, of which this WSA is part, has interesting erosional patterns and varied rock formations.

Many unusual plant species and specialized plant communities occur in or near the Snake River Canyon. A high concentration of endemic species generally results in many one-of-a-kind plant associations or communities. The Snake River Canyon is second only to the Siskiyou Mountains in the Pacific Northwest in this regard.

The Snake River Canyon is important not only for its unusual plant species, but also for its biological diversity. It is considered by many botanist to be a center of evolution for many groups of species, botanically linking the Pacific Northwest with regions far to the south, such as the Mojave Desert.

Bald eagles winter along the Snake River adjacent to the WSA. Northern bald eagles are Federally listed as a threatened species in Oregon under the Endangered Species Act. The reintroduction of Rocky Mountain bighorn sheep in the adjacent area has been proposed by ODFW. The bighorn sheep would be released off site but could be expected to use a portion of the WSA during part of the year.

Although the WSA has not been inventoried for cultural resources, two cultural sites have been identified. One site is an undisturbed, intensively-used upland aboriginal campsite with a wide range of tools and materials, the other is a burial site of unknown extent, with a possible Paleo-Indian component.

Diversity in the National Wilderness Preservation System (NWPS)

According to the Bailey-Kuchler system for classifying ecosystems, the WSA is in the Rocky Mountain Forest Province and has a potential natural vegetation of wheatgrass-bluegrass and grand fir-Douglas fir forest.
Seven plant communities listed in the Ochoco, Blue and Wallowa Mountain section of the Oregon Natural Heritage Plan occur in this area: Douglas fir-ponderosa pine/pinegrass; Douglas fir-ponderosa pine/elk sedge; Douglas fir/mallow-ninebark in the Douglas fir zone; bluebunch wheatgrass-Idaho fescue-Sandberg's bluegrass complex; big sagebrush-bunchgrass community inside forest zone; and bitterbrush/bunchgrass.

Boise, Idaho, and the tri-cities area of Washington (Richland, Pasco, Kennewick) are the two standard metropolitan statistical areas with a population over 100,000 within five hours' driving time of the WSA.

Energy and Mineral Development

The primary source for evaluation of the geology and energy and mineral potential of the McGraw Creek WSA comes from a report written by WGM, Inc., a consulting firm under contract with BLM. Using this report, the study area was reevaluated by BLM geologists during June 1987.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. Table 3 shows the energy and mineral classifications for the WSA.

The western tip of the WSA is capped by Tertiary age basalt flows which once covered the entire area. Over most of the WSA the basalt flows have been eroded, exposing Permian to Triassic rocks consisting of marine volcaniclastic rocks and lava flows with minor amounts of marine limestone. These rocks have undergone metamorphism, faulting, folding and shearing. Hot mineralized fluids have deposited metallic minerals along faults and shear zones and in limestone and other permeable rock units.

Energy Resources

Based on indirect and minimal direct evidence, the entire WSA is considered to have low potential for occurrence of energy resources. As of October 16, 1987, there were no oil and gas, geothermal or coal leases located within the WSA.

Mineral Resources

A known copper occurrence is located at the western end of the WSA. Two other copper occurrences are located just south of the WSA on patented mining claims. Numerous other metallic mineral occurrences, one of which is an operating copper, gold, and silver mine, have been discovered in the general area surrounding the WSA. Based on indirect and direct evidence the entire WSA is considered to have moderate potential for the occurrence of copper, gold and silver mineralization.

As of October 16, 1987, the WSA no longer contains any mining claims. A group of patented mining claims forms part of the southern boundary of the WSA.

Vegetation

The predominant vegetation in the WSA is bluebunch wheatgrass. The steep slopes support a variety of dryland plants including Sandberg's bluegrass, Cusick's milkvetch, arrowleaf balsamroot, yarrow and shaggy fleabane. The North Fork Copper Creek provides habitat for a variety of riparian species including black cottonwood, willow, alder, chokecherry, rushes, sedges and Kentucky bluegrass. Much of this vegetation is in good condition. The WSA contains a small area of non-economical timber composed of Douglas, White and Grand firs and ponderosa pine on the more moist areas. These timber stands are in mid-seral stage. All of the WSA is a bluebunch wheatgrass/Sandberg's bluegrass vegetative community. The majority of the vegetation, including the riparian zone, is in a mid to late seral stage, with a static to upward trend.

There are no known threatened or endangered plant species within the WSA.

Wildlife

Much of the wildlife habitat in the WSA is in good condition, especially the steep slopes which are covered with bluebunch wheatgrass. Some of the flatter areas are in poor condition, and are dominated by cheatgrass and medusahead wild rye grass. The riparian zone in Copper Creek is generally in good condition with a multi-storied tree-shrub layer. Small stringers of old-growth trees provide diversity to the area. The riparian zone and the narrow, forested stringers provide habitat, primarily cover, for a small number of wildlife species including black bear, mule deer, elk, song birds, woodpeckers and blue grouse. The adjacent grasslands provide foraging areas for...
the above-mentioned species as well as chukars, rodents and coyotes. Wintering bald eagles primarily utilize the Snake River for fishing, but are not resident to the WSA.

Watershed

The soils within the WSA are a complex of several major groups. They range in depth from 10 to 60 inches and have high clay contents with low rates of permeability. They are of basalt origin, have a relatively high rock content and occur throughout the rugged basalt rims and outcrops. Slopes range from 35 percent to greater than 70 percent. These soils are highly erodable.

The watershed contains approximately one mile of the northern forks of Copper Creek. This is the only perennial stream within the boundary. Riparian vegetation coverage is good within the WSA.

The annual precipitation rate changes because of elevational differences. On the east side next to the Snake River, the precipitation is 10 inches or less. Higher up, on the Snake River rim on the west side, the precipitation increases up to 20 inches. Most precipitation occurs in short duration, high intensity summer storms. These storms can cause severe damage to watersheds, especially to lower drainages.

Livestock Grazing

The entire WSA lies within the Homestead Allotment. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

There are no existing range improvements within the WSA. Due to rugged topography and lack of vehicle routes in the WSA, all livestock management is accomplished on horseback or foot.

Wood Products Harvest

The original 86 acres of commercial forest land identified in the Supplement to the Draft Oregon Wilderness Environmental Impact Statement (1987) was in error. An indepth analysis of the WSA timber stands identified only 36 acres of forest land, all of which are noncommercial and not included in the Baker Resource Area allowable harvest base. There are no wood products harvested proposed within this WSA, as this timber resource is considered old growth set aside as identified in the Baker Resource Management Plan. Therefore, forest products will not be further analyzed in this appendix.

Recreation

Recreation in the WSA includes big game (elk, deer, bear) and upland game (chukar partridge) hunting, backpacking, day hiking, bird watching, camping, horseback riding, sightseeing and photography. Use of vehicles is limited to the 0.5 mile road that forms the west boundary. Vehicle use of the road is extremely light and is usually associated with hunting. There is no vehicle use within the WSA.

Overall recreation use in the WSA amounts to approximately 400 visitor days per year. Most of this current use utilizes the foot trail near the eastern boundary of the Hells Canyon Reservoir that provides foot access to the southeast portion of the Hells Canyon National Recreation Area.

Local Personal Income

Livestock use at the current level of 6 AUMs and recreation use totaling 400 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $72 for livestock grazing and $4,800 related to recreation use of the WSA, for an overall total of $4,872. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended for wilderness: 497 acres
Recommended unsuitable for wilderness: 0 acres
Impacts on Wilderness Values

All 497 acres of the WSA would be designated wilderness. Wilderness values within the 497 acres would be protected by legislative mandate. Wilderness values of naturalness, and special features, including undisturbed riparian areas, specialized plant communities, cultural sites, and wintering bald eagle habitats would be protected.

Naturalness

Wilderness designation would preserve the area’s apparent naturalness as described in the affected environment section.

A hiking trail within the McGraw Creek WSA would remain substantially unnoticeable.

Solitude

Although not outstanding, the area’s opportunities for solitude would be preserved under wilderness designation.

Primitive and Unconfined Recreation

The area’s limited opportunities for primitive and unconfined types of recreation would be preserved by wilderness designation.

The small size and narrow irregular shape of the WSA limit any recreational opportunities. Activities available include day hikes, hunting, photography, wildlife viewing, sightseeing and horseback riding. These activities are less than outstanding because of the restricted area.

Special Features

The special features, including unusual plant communities, cultural resources and wildlife, would remain undisturbed under the all wilderness alternative.

Conclusion: Wilderness designation of the 497 acres within the McGraw Creek WSA would result in protection of the area’s existing wilderness values.

Impacts on Mineral and Energy Development

Wilderness designation would close 497 acres within the WSA to all forms of mineral entry.

Energy Development

Exploration for energy resources would be precluded on 497 acres. However, no exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

Conclusion: No impact to energy development is expected.

Mineral Development

Exploration and development of copper, gold and silver resources would be precluded on 497 acres.

All projected exploration and development actions for copper, gold and silver would be precluded. The projected actions include drilling at 25 sites, excavation of two exploration drifts, and production from one open-pit/underground mine complex.

Conclusion: Production would be foregone from a projected copper, gold and silver mine.

Impacts on Vegetation

Under the all wilderness alternative, little or no change would take place to vegetation because there are no management actions projected that would affect vegetation and current grazing practices would continue. Vegetative composition would not be changed. Ecological status, which is mainly in late seral stage with some areas in mid-seral stage with a static to upward trend, would also not change. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.

Conclusion: Little or no change would occur to vegetation.

Impacts on Wildlife

Wildlife habitat for the small populations of deer, elk, black bear, mountain lion, upland game birds and nongame species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. There are no management actions projected that would influence wildlife habitat or populations.

Conclusion: Wildlife habitat and populations would be maintained throughout the WSA.
Impacts on Watershed

Watershed conditions, including soil stability throughout the WSA and water quality on the northern forks of Copper Creek, would remain subject to natural forces under this alternative.

Conclusion: Water quality and soil stability would be little changed throughout the WSA.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of six AUMs within the Homestead Allotment. All livestock management would continue to be done by horseback or on foot. There are no projected actions that would affect livestock grazing or management.

Conclusion: Livestock use would continue at the current level of six AUMs. There would be no impact on livestock grazing or management.

Impacts on Recreation Use

Wilderness designation would have little or no impact upon the area’s recreation use level of approximately 400 visitor days per year, as current use levels of the trail to the Hells Canyon National Recreation Area and other recreation use in the WSA would continue.

Conclusion: The area’s recreation use level of approximately 400 visitor days per year would not be affected.

Impacts on Local Personal Income

Livestock grazing would remain at six AUMs and overall recreation use would remain at 400 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $5,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for wilderness: 0 acres
Recommended nonsuitable for wilderness: 497 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 497 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, and the area’s special features, including special plant communities, varied rock formations, wintering bald eagle habitat, undisturbed riparian areas and cultural sites would be subject to the effects of the projected management actions. Projected actions include mineral exploration and development of an open-pit mine.

Naturalness

Mineral exploration and development would extensively influence the area’s naturalness. The WSA contains 497 acres of which 30 acres (six percent) would be affected by surface disturbance. The 12 acres of disturbance associated with mineral exploration would be rehabilitated, but the 18 acres associated with mineral development would cause long-term impairment of naturalness. Due to the area’s configuration, mineral exploration and development would visually influence naturalness over the entire WSA. However, due to the visual barrier created by the ridgeline separating the WSA from the adjacent Hells Canyon Wilderness, the visual influences from projected mining activities would not extend into the existing wilderness area.

Solitude

Human activities associated with projected mineral exploration and development in the WSA, with its configuration of 2.5 miles in length and widths varying from 50 feet to 0.75 miles (see Map 2), would further reduce existing opportunities for solitude over the entire WSA. Such activities would not be visible from the adjacent Hells Canyon Wilderness Area, due to the ridgeline barrier between them, and would thus not affect the wilderness area’s opportunities for solitude.

Primitive and Unconfined Recreation

Projected mineral exploration and development would further reduce the area’s primitive recreation opportunities, which are presently less than outstanding. Surface disturbance and increased activity resulting from mineral exploration and development would result in the disruption of the natural setting and displacement of the area’s wildlife, both reducing primitive recreation opportunities. Mineral activities would not affect primitive recreation opportunities on the adjacent Hells Canyon Wilderness Area.
Special Features

Projected mineral exploration and development would impact endemic plant species, habitat for wintering bald eagles and varied rock formations through 30 acres of surface disturbance from road construction, drilling and development of an open-pit mine.

Conclusion: In the absence of wilderness designation, projected activities would both directly and indirectly impair wilderness values over the entire 497-acre WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

The entire 497 acre WSA would be open to mineral entry.

Energy Development

No exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

Conclusion: There would be no impact on energy development in the WSA.

Mineral Development

Exploration for copper, gold and silver is postulated to occur throughout the WSA. This effort would include drilling at 25 sites and development of two short exploration drifts. Discovery of an economic copper, gold and silver deposit is postulated to occur at the eastern end of the WSA in the vicinity of the known copper occurrence. Development of an open-pit/underground mine complex is projected.

Conclusion: Production from a projected copper, gold and silver mine would occur.

Impacts on Vegetation

A substantial change would take place to vegetative composition and ecological status of the WSA. Utilization of key forage species would increase from 40 percent to approximately 70 percent as the result of increased access from the 4 miles of roads, allowing for a greater distribution of livestock into areas that are presently inaccessible. There would be a corresponding decrease in residual ground cover, including less rushes, sedges, Kentucky bluegrass, willow, and alder along riparian areas.

Vegetation would be removed from 30 acres as a result of surface disturbance from projected mineral exploration and development activities. Reclamation of exploration sites would reduce the vegetation impact to 18 acres. Soil disturbance would add sedimentation to the northern forks of Copper Creek, reducing the quality of riparian vegetation.

Conclusion: Vegetation would be lost on 18 acres and the quality of riparian vegetation along streams would decrease.

Impacts on Wildlife

Vehicle traffic on 5 miles of new roads, associated with projected mineral exploration and development, would displace deer, black bear and elk. Impacts from actual mining activity would be long-term, with permanent removal of habitat on 18 acres. Mining activities would likely discourage use of the area by bighorn sheep, which are proposed for reintroduction immediately outside the WSA. Displacement of big game from this 497-acre WSA would have negligible effects on ODFW management goals for the entire 234,000 acre Pine Creek Wildlife Unit. Wildlife populations, especially large mammals would sustain increased levels of harassment due to human activity, associated with mineral exploration and development as related to the entire ODFW wildlife unit.

Conclusion: Displacement of a small number of large mammals (deer, elk and black bear) would have a minor impact on overall populations within the vicinity. Wildlife habitat would be destroyed on 18 acres.

Impacts on Watershed

Projected mineral exploration and development would cause increased erosion due to the low rate of permeability of the soils and the steepness of the slopes. Road construction and surface disturbance would cause severe watershed damage during summer high intensity storms.

Conclusion: Soil stability would be directly impacted by surface disturbance on 30 acres.

Impacts on Livestock Grazing

Current livestock use would continue at six AUMs. Livestock management would continue to be conducted by foot or horseback.
Conclusion: Livestock use would continue at the current use level of approximately six AUMs.

Impacts on Recreation Use

Although 5 miles of access roads would be constructed for projected mineral exploration and development, this would not result in new motorized recreation in the WSA because only vehicles involved in mineral activities would be allowed use of these roads. However, mineral development with associated road construction would displace deer, elk and black bear, resulting in reduced hunting use of the WSA.

Foot access from the trailhead (outside the WSA) through the eastern boundary of the WSA to reach the Hells Canyon National Recreation Area would remain at current levels. Projected mining development near the trail would not affect numbers of trail users, since their primary destination is outside the area affected by the mineral activities.

As a result of decreased hunting opportunities, recreation use of the WSA is projected to decrease from the current level of approximately 400 visitor days per year to approximately 350 visitor days per year.

Conclusion: The area's recreation use level of approximately 400 visitor days per year would decrease to approximately 350 days per year.

Impacts on Local Personal Income

Livestock grazing would remain at six AUMs. Projected energy and mineral development would amount to one metallic mine. Overall recreation use would decrease by 50 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net decrease of $600 per year, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would decrease by approximately $600, with an unknown level of increase from projected mineral development.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), wilderness values would be adversely affected by projected mineral exploration and development activities, which would result in 18 acres of long-term surface disturbance and would visually influence the entire 497-acre area.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the proposed action, existing short-term uses would continue and future development options, such as projected mineral development, would remain open. Long-term productivity of wilderness values would be directly lost on 18 acres from surface disturbance and indirectly lost over the entire 497 acres from visual disturbance due to projected mineral developments. Further declines in wilderness values from other uses would be possible over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the proposed action, projected mineral development would result in an irreversible commitment of the area's existing wilderness values on 18 acres directly, with the natural character of the entire 497 acres compromised by visual disturbance from the developments. There would also be an irretrievable commitment of the mineral resource.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area would be very difficult to manage as wilderness. Although the WSA is entirely public land, it is small in size (497 acres), has a narrow configuration and lacks outstanding wilderness characteristics of solitude and primitive recreation opportunities. The off-site sights and sounds which intrude upon the area's naturalness would greatly impede effective wilderness management.
Wilderness management would be further complicated at the southern WSA boundary which does not follow a topographic feature (e.g. ridge or creek) and is thus not readily identifiable.

Rationale for Selection of the Proposed Action

The no wilderness/no action alternative is the proposed action due to the benefits to be gained by leaving the area open for exploration and possible development of mineral resources, and because of the WSA’s marginal wilderness values. It is projected that exploration for metallic minerals would occur over much of the WSA and one mine would be developed. In addition, the area would be very difficult to manage as wilderness.

Although the WSA adjoins Hells Canyon Wilderness, it is topographically separated from it by a ridgeline. Because of this separation, the WSA is not enhanced by the adjoining wilderness area’s qualities, nor does the WSA add to the adjoining area’s wilderness values. The WSA’s wilderness qualities are limited by the absence of outstanding opportunities for solitude and the effect of developments and activities outside the area on solitude and naturalness. The WSA has some places where a visitor can achieve a sense of solitude; however, opportunities for solitude are not outstanding.

The WSA slopes eastward toward Hells Canyon, or southward toward Copper Creek. Most of the area is influenced by indications of human activity. Many of these developments are major, consisting of hydroelectric dams, 350-KV powerlines, roads, major reservoirs (Oxbow and Hells Canyon Reservoirs), power substations, a bridge and highways. A visitor’s perception of the opportunities for solitude and naturalness is greatly diminished by these constructed features.

Overall, the ridgeline along the northern edge of the WSA forms the most easily recognizable and manageable viewshed boundary for the adjacent Hells Canyon Wilderness.

6. Summary and Analysis of Public Comment

The following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

**Comment:** Boundaries of the suitable recommendation are poorly drawn. BLM should include the high fault scarps of Hells Canyon. **Response:** The boundary was drawn by legislative mandate as part of the Hells Canyon National Recreation Area.

**Comment:** Adjust the southern boundary as per submitted map. Area should be twice as large. The boundary is poorly drawn to avoid marginal timber patches or possible mineral deposits. **Response:** The boundaries of the WSA as presented in the Supplemental EIS are based on the inventory report. Refer to the Statewide Volume, Chapter 5, for a discussion of Inventory Concerns under Scoping. However, the present boundary was drawn by legislative mandate as part of the Hells Canyon National Recreation Area.

**Comment:** Combination of the areas would protect natural resources. Combine with existing wilderness. **Response:** Additions to the Hells Canyon National Recreation Area would require another specific legislative act. This alternative is not germane to a wilderness EIS.

**Comment:** McGraw Creek, Homestead, and Cache Creek should be added to the Hells Canyon National Recreation Area. **Response:** Additions to the Hells Canyon National Recreation Area would require another specific legislative act. This alternative is not germane to a wilderness EIS.

**Comment:** There is a need to protect Hells Canyon. Combine 6-2, 6-3, and Cache Creek. **Response:** The three WSAs cannot be combined due to their distances from each other and intervening lands owned privately or administered by other agencies.
Table 1. Summary of Proposed Management Under Each Alternative, McGraw Creek WSA (OR-6-1)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>No Wilderness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>497</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>497</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed(^2)</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation</td>
<td>497</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^1\) ORV designation of public lands through the Bureau's land use planning process.
\(^2\) Of the 5 miles of new roads, 4 miles would be temporary roads used for mineral exploration and would be closed and reclaimed following the exploration activities.
Table 2. Summary of Environmental Consequences of Alternatives, McGraw Creek WSA (OR-6-1)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>No Wilderness/No Action (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of 497 acres would result in protection of the area’s existing wilderness values.</td>
<td>In the absence of wilderness designation, projected activities would both directly and indirectly impair values over the entire 497-acre WSA, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral</td>
<td>No impact to energy development is expected. Production would be foregone from a projected copper, gold and silver mine.</td>
<td>There would be no impact on energy development. Production from a projected copper, gold and silver mine would occur.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Little or no change would occur to vegetation.</td>
<td>Vegetation would be lost on 18 acres and the quality of riparian vegetation along the streams would decrease.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA.</td>
<td>Displacement of small numbers of large mammals (deer, elk and black bear) would have a minor impact on overall populations within the vicinity. Wildlife habitat would be destroyed on 18 acres.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Water quality and soil stability would be little changed throughout the WSA.</td>
<td>Soil stability would be directly impacted by surface disturbance on 30 acres.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would continue at the current level of 6 AUMs. There would be no change in livestock grazing use levels or management.</td>
<td>Livestock use would continue at the current use level of 6 AUMs.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area’s recreation use level of approximately 400 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of approximately 400 visitor days per year would decrease to approximately 350 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $5,000.</td>
<td>Annual local personal income would decrease by approximately $600, with an unknown level of increase from projected mineral development.</td>
</tr>
</tbody>
</table>
Table 3. Classification of Energy and Mineral Potential, McGraw Creek WSA (OR-6-1)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level of Potential</th>
<th>Level of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Gold, &amp; Silver</td>
<td>Entire WSA</td>
<td>M</td>
<td>C</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Zeolite</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulation of energy/mineral resource
H - High potential for accumulation of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, McGraw Creek WSA (OR-6-1)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Estimated Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homestead (No. 3006)</td>
<td>587</td>
<td>04/15/88-06/30/88</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1989 Rested</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>470</td>
<td>04/15/90-06/15/90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>07/01/91-09/30/91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 year average</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>414</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, McGraw Creek WSA (OR-6-1) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGES IN RESOURCE OUTPUTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>Number</td>
<td>No Change</td>
<td>+1</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>No Change</td>
<td>-50</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
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</tr>
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McGraw Creek WSA, OR-6-1. Rugged terrain on the east-facing portion of the WSA. The Snake River (Hells Canyon Reservoir) is in the foreground. April 1986.

McGraw Creek WSA, OR-6-1. Southern boundary of the WSA is just north of Copper Creek, which enters the Snake River center right of photograph. Land south of Copper Creek is privately owned. April 1986.
Appendix to the
Wilderness Environmental Impact Statement
for Oregon

Homestead Wilderness Study Area
(OR-6-2)

1. Introduction

General Description of the Study Area

The Homestead Wilderness Study Area (WSA) is located on the west side of the Snake River adjacent to Oregon State Highway 86 in Baker County, Oregon, approximately 75 miles northeast of Baker, Oregon, and 20 miles northeast of Halfway, Oregon (see Map 1).

The Homestead WSA has been modified from the supplemental draft EIS to include an additional 80 acres of acquired privately-owned land within the WSA. The total acreage of the WSA is now 14,655 acres (see Map 2).

The WSA contains 7,001 acres of BLM land and 7,654 acres of Forest Service land (see map 2) for a total of 14,655 acres. Four parcels (three USFS and one BLM) totalling 760 acres of split-estate land are located within the WSA. The Forest Service land includes 6,260 acres in the Homestead RARE II (the Forest Service's second roadless area review and evaluation) further planning unit, 200 acres of formerly private land (three split-estate parcels) acquired by the Forest Service, and 1,194 acres in the northwest portion of the WSA which were transferred from BLM to the Forest Service in 1983 through provisions of the Hells Canyon National Recreation Area Act. This 1,194-acre tract was transferred to the Forest Service with the provision that it remain subject to wilderness review until Congress determines whether the entire WSA will be designated wilderness.

There are 259 acres of private inholdings in the BLM portion of the WSA.

The WSA is almost 10 miles long, 5 miles wide at its widest point and 400 yards at its narrowest point. Its average width is 2 miles. The WSA is bordered by private land and power site withdrawals on the east and south, national forest land on the west and a 500-kV power line on the north. The boundary is irregular on the north, east and northwest sides. Two dead-end roads (1 mile each) enter the WSA along the southwest boundary.

The Homestead WSA is on a north-south oriented hogback ridge. Very short steep drainages (0.5 to 2.5 miles) run east to west through rugged canyons.

Most of the area lies on the east-facing slope that fronts Hells Canyon Reservoir. McClain Gulch, the major drainage, occurs on the Forest Service portion of the WSA; it runs in a southern direction to the southern boundary, a distance of 3 miles.

Vegetation in the area is diverse and includes bunchgrass, cheatgrass and wheatgrass, big sagebrush, elderberry, hawthorne, poison ivy, snowberry, Douglas fir, white fir and ponderosa pine. The timber present in the WSA on BLM land is predominately old growth. These trees are found on the moist, flatter areas of the steep draws.

Interrelationships

The boundary of the Hells Canyon National Recreation Area (NRA) follows the crest of a north-south hogback ridge through most of the WSA. A total of 5,414 acres of Forest Service land in the study area is also located in the Hells Canyon NRA, including all of the 1,194 acres transferred from BLM to the Forest Service and 4,220 acres in Homestead RARE II area 6291. These lands are withdrawn from energy and mineral location and leasing under the NRA designation.

The Homestead WSA is across Pine Creek Canyon from the Sheep Mountain WSA. If these areas were designated wilderness, a relatively continuous line of National Forest-BLM wilderness would extend...
approximately 60 miles along the west side of the Snake River from the mouth of the Imnaha River to about 2 miles above Brownlee Dam.

Adjacent to the WSA, near the Snake River, is part of a power site reserve, a power site classification, and Federal Energy Regulatory Commission classifications which identify the land for potential water power and water storage development. These "withdrawals" are scheduled for review in the next few years, which may lead to their revocation. Power site development has already resulted in development of the Hells Canyon Reservoir on the river below the WSA.

The entire WSA falls within lands which were ceded to the U.S. Government by the Nez Perce Indian Tribe by ratified treaty. This treaty reserved rights for hunting, fishing, and gathering in usual and accustomed places and grazing livestock on unclaimed land.

The 7,001 acres of BLM land have been recently designated the Homestead Area of Critical Environmental Concern (ACEC) through the Baker Resource Management Plan (see Map 2). The 7,001 acres contain outstanding scenic qualities, wildlife and bald eagle habitat.

Special management provisions to protect these qualities include:

- exclusion of harvest of economically non-operable timber,
- seasonal restrictions for oil and gas exploration and development,
- off-road vehicle use limited to designated roads and ways, and
- acquisition of private inholdings to benefit bald eagle habitat.

These restrictions would continue to apply throughout the WSA designated ACEC, whether or not the area is designated wilderness.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Pine Creek Wildlife Unit, which contains 366-square-miles of land area. The WSA supports a summer population of 50 to 75 mule deer and a winter population of 250 to 300 mule deer. The WSA supports about 10 to 15 elk on a yearlong basis and 75 to 100 during the winter. ODFW manages the Pine Creek Unit to produce 10 bucks per 100 does of mule deer and 5 bulls per 100 cows of elk. A proposal to reintroduce Rocky Mountain bighorn sheep immediately north and south of the boundaries of the WSA is included in the Oregon Bighorn Sheep Management Plan, 1986. Future transplants of wild turkey are being considered immediately to the north of the WSA. Other game animals found in the area are mountain lion, black bear, chukar and blue grouse. A small number (less than six) of wintering bald eagles are occasionally seen foraging on the Snake River adjacent to the eastern boundaries of the WSA. The bald eagle is listed as a Federal threatened species in Oregon under the Endangered Species Act. The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Baker County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on current and future exploration and development of minerals,
- impact on access to private inholdings (see Statewide EIS volume),
- impact on plant species of special interest and bald eagles,
- impact on timber harvest in the WSA,
- impact on the area’s wilderness values, and
- impact on vehicle use of the two dead-end roads.

The following issue was considered, but was not analyzed for this WSA because its environmental significance or concern was not major to the decision process.

- impact on wilderness and other resource values from projected mineral development on existing claims and private and split-estate lands under wilderness designation: such actions are not BLM actions and could occur under any of the alternatives due to valid existing rights.
2. Description of Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably-foreseeable future actions. Unforeseen changes insuch factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- partial wilderness
- no wilderness/no action (Proposed Action)

All Wilderness

Under the all wilderness alternative, all 14,655 acres of Federally managed land in the study area (7,001 acres BLM and 7,654 acres Forest Service) would be recommended suitable as wilderness (see Map 2). For purposes of analysis, it is assumed the 259 acres of private inholdings and the mineral estate of 760 acres of split-estate land would not be acquired.

Energy and Mineral Development Actions

Wilderness designation would close 8,481 acres in the WSA to all forms of mineral entry. The Hells Canyon National Recreation Area portion of the WSA (approximately 5,414 acres) is already withdrawn from mineral location and leasing. Four parcels of split-estate land totaling 760 acres, and three parcels of private inholdings totaling 259 acres, would be open to mineral exploration and development.

As of October 16, 1987, there are no mineral leases within the WSA but there are 48 lode mining claims located in or partially within the WSA. The lode mining claims are all located along the eastern side of the northern portion of the WSA on BLM-administered public land and adjacent to the patented mining claims surrounding the Iron Dyke Mine and the town of Homestead.

Exploration for energy resources would be prohibited on 8,481 acres in addition to the 5,414 acres already withdrawn in the NRA. Due to a lack of geologic evidence, no known source for petroleum, coal, or geothermal resources, and the absence of any existing mineral leases, only casual exploration for energy resources is postulated on 1,019 acres of private and split-estate land.

Exploration and development for mineral resources would be prohibited on 8,481 acres in addition to those withdrawn in the NRA.

Due to three known metallic mineral occurrences within the WSA, the adjacent Iron Dyke mine (an operating, underground, copper, gold and silver mine), and a high potential for occurrence of metallic minerals throughout the entire WSA, exploration and development for copper, gold and silver is anticipated to occur on the largest split-estate parcel, all three private inholdings, and some of the existing mining claims. This effort would most likely begin with surface examination and sampling followed by core drilling using a track-mounted drill due to the steep terrain. Exploration drilling may involve up to 22 drill sites on the largest split-estate parcel and nine drill sites on the private inholdings. It is projected that exploration activities would disturb 26 acres of BLM-administered land within the WSA, including 10 miles of new road construction.

Following the completion of drilling, one small exploration drift (underground excavation) is projected for the largest parcel of private inholding. This excavation is not projected to discover economic quantities of mineral resources and would not result in any additional disturbance of public land.

Exploration drilling on the largest split-estate parcel (560 acres) and the northernmost parcel of private inholding (19 acres) is postulated to discover economic mineral deposits, one on each parcel, due to the presence of known mineral occurrences at these locations. Mineral development is projected to occur on these sites.

The main portals, milling facilities and waste rock dumps for the projected underground mines would be
developed outside of the WSA along the eastern border of the northern portion of the WSA. However, surface development drilling and air shafts are postulated at both sites. In addition, development of a very small surface mine in association with an underground mine is anticipated on the split-estate parcel. It is also postulated that on mining claims located around the private parcel, additional surface disturbance from surface development drilling would occur. Access to the sites would be provided by exploration drill roads.

Surface disturbance on public land within the WSA from mineral resource development actions is postulated to total 12 acres. One acre of surface disturbance, resulting from development drilling, is anticipated on the public land surrounding the private inholding. The remaining 11 acres of surface disturbance is postulated to occur on the split-estate parcel, including nine acres attributed to surface mining and two acres attributed to development drilling and other surface facilities.

Total surface disturbance anticipated from all energy and mineral resource exploration and development actions is estimated to total 38 acres, including 10 miles of new road construction, two underground mine sites and a 9-acre open pit.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM's Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 660 AUMs within the portions of nine allotments in the WSA. The season of use would remain as identified in Table 4 for the allotments. No livestock improvements are proposed in the WSA. Management of livestock and maintenance of 400 feet of gap fence would be mainly conducted on horseback.

Recreation Management Actions

The entire 14,655 acres of public land (including Forest Service land) would be closed to motorized vehicle use. Presently, vehicle use is limited to two dead-end roads (2 miles) that enter the WSA in the southwest portion. A 9-mile foot trail is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon National Recreation Area. Current recreational use is estimated to be 600 visitor days per year in the WSA.

Partial Wilderness

The partial wilderness alternative would recommend 8,773 acres (2,573 acres BLM and 6,200 acres Forest Service) suitable as wilderness and 5,882 acres as nonsuitable (see Map 3). In addition, an attempt would be made to acquire 240 acres of private inholdings. The private parcels could be acquired through purchase or exchange with willing owners.

Assuming acquisition of these parcels, the total area recommended suitable under this alternative would be 9,013 acres.

The area identified as nonsuitable consists of the northern third of the WSA and the two small, isolated pieces of Homestead RARE II area 5291. This portion would be recommended as nonsuitable because it would not be manageable as wilderness. The northern boundary of the suitable area would run east and west along the ridge immediately south of Bob Creek.

Energy And Mineral Development Actions

The Hells Canyon National Recreation Area portion of the southern, suitable area (approximately 3,650 acres) is already withdrawn from mineral location and leasing. Wilderness designation would close another 4,885 acres of Federal land within the WSA and 240 acres of private inholdings, which the Federal government would acquire, to all forms of mineral entry and development. With 5,414 acres presently withdrawn from mineral entry by NRA designation, the total area closed to mineral and energy entry within the WSA would be 10,539 acres.

The Hells Canyon National Recreation Area portion of the northern, nonsuitable area of the WSA (approximately 1,764 acres) is withdrawn from all forms of
Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and, in the suitable area, in a manner consistent with BLM’s Wilderness Management Policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 660 AUMs within the portions of nine allotments within the WSA. The season of use would remain as identified in Table 4 for the allotments. No livestock improvements are proposed in the WSA. Management of livestock and maintenance of 400 feet of gap fence would be mainly conducted on horseback.

Recreation Management Actions

The 8,773 acres recommended suitable for wilderness would be closed to motorized vehicle use. Presently, vehicle use is limited to two dead-end roads (2 miles) that enter the WSA in the southwest portion. A 9-mile foot trail is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon NRA. Current recreational use is estimated to be 600 visitor days per year.

No Wilderness/No Action (Proposed Action)

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation. The BLM and Forest Service portions of the WSA area would be managed according to the current land use plans.
Energy and Mineral Development Actions

The Hells Canyon NRA portion of the WSA (approximately 5,414 acres) is already withdrawn from all forms of mineral entry. A total of 9,241 acres of Federal land within the WSA would be open to exploration and development of energy and mineral resources.

Exploration for energy resources could occur on approximately 9,241 acres of Federal land within the WSA. Due to a lack of geologic evidence, a lack of moderate or high potential for energy resources, no known source for petroleum, coal, or geothermal resources, and the absence of any existing mineral leases, only casual exploration for energy resources is postulated.

Due to three known metallic mineral occurrences outside the NRA portion of the WSA and a high potential for occurrence of metallic minerals throughout the entire WSA, exploration for copper, gold, and silver is postulated to occur. This effort would most likely begin with surface examination and sampling followed by core drilling using a track-mounted drill due to the steep terrain. Exploration drilling may involve up to 134 drill sites. The resulting surface disturbance on public land is expected to total 102 acres, including 37 miles of new road construction.

Exploration drilling on public land located southwest of the town of Homestead, on the northernmost parcel of private inholding, and on the 560-acre split-estate parcel is postulated to discover economic mineral deposits, one at each site, due to the presence of known mineral occurrences at these locations. Development of these deposits is projected.

The main portals, milling facilities, and waste rock dumps for the projected underground mines would be developed outside of the WSA. However, surface development drilling and surface developments such as air shafts are postulated at all three sites. Also, development of a very small surface mine in association with an underground mine is anticipated on the split-estate parcel. Access to the sites would be provided by exploration drill roads. Surface disturbance on public land within the WSA from mineral resource development actions is postulated to total 14 acres.

Total surface disturbance anticipated from all energy and mineral resource exploration and development actions is estimated to total 116 acres, including 37 miles of new road construction, three underground mine sites and a 9-acre open-pit mine.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan development updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 660 AUMs within the portions of nine allotments. The season of use would remain as identified in Table 4 for the allotments. No livestock improvements are proposed in the allotments. Vehicle use would be allowed on 37 miles of new mineral exploration roads. The roads would be used five to ten times per year to check livestock and spread salt. Maintenance of 400 feet of gap fence would continue to be mainly conducted by horseback.

Recreation Management Actions

Over the entire 14,655 acres, vehicle use would be limited to two dead-end roads (two miles) that enter the WSA in the southwest portion and the 37 miles of new mining roads. A 9-mile foot trail is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon National Recreation Area. Current recreational use is estimated to be 600 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.
Wilderness Values

Naturalness

The WSA appears to be generally natural. The three developments within the WSA are substantially unnoticeable and include one short (400-foot) gap fence and two developed springs. They are well-screened by vegetation and topography, and their combined influence is negligible.

Developments outside the WSA can be seen or heard from most of the area. The effect on the area's apparent naturalness is substantial. Nearly all the developments are within 1 mile of the WSA.

The outside sights and sounds come from fences, water developments (including the Hells Canyon and Oxbow Reservoirs on the Snake River), a dam and powerhouse, powerlines, buildings and bridges, roads and ways. These outside influences are concentrated along the northern two-thirds of the WSA and its southwestern corner. An area in the southern one-third of the WSA is not affected by external developments.

A visitor traversing the main hogback ridge would not be screened from these outside influences, except in small, timbered areas. In several locations the west boundary is less than 500 yards from the main ridge, providing the visitor almost no area screened from developments.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

The WSA does not provide outstanding opportunities for solitude. Although there are areas where a visitor can find solitude, these areas are small, scattered and too few to be considered outstanding.

Several recreation opportunities in the WSA are considered to be outstanding. Availability of game animals is excellent. People come from several states to hunt elk and bear, and chukar hunting is unsurpassed. Hunting seasons occur in the area from mid-August to January.

Backpacking opportunities are excellent. The area offers a 10-mile trek along a knife-edge ridge that plunges dramatically to each side. Access to this ridge for backpacking, while easy from the west-central area, is extremely difficult, even dangerous, from the east side.

The deeply incised side creek drainages create spectacular relief. These features and the area's diverse flora and fauna create outstanding opportunities for the nature photographer.

The WSA offers exceptional sightseeing opportunities: the view from the main ridge is spectacular. To the northeast in Idaho, the visitor can see Idaho's Seven Devils Mountains; to the northwest, snow-capped peaks of Oregon's Wallowa Mountains dominate the surrounding view.

Vehicle access to the study area is readily available at the base of the steep east and south sides. The west side is not as rugged, but it requires crossing north Pine Creek, which has only one bridge. The westside is also more heavily forested, making foot travel difficult.

Special Features

A plant species found in the area, Allium madidum, is of special interest. (This plant is discussed further in the Vegetation section.)

Many unusual plant species and specialized plant communities occur in or near the Snake River Canyon. A high concentration of endemic species generally results in many one-of-a-kind plant associations or communities. The Snake River Canyon is second only to the Siskiyou Mountains in the Pacific Northwest in this regard.

The Snake River Canyon is important not only for its unusual species, but also for its biological diversity. It is considered by many botanists to be a center of evolution for many groups of species, botanically linking the Pacific Northwest with regions far to the south, such as the Mojave Desert.

The WSA is immediately adjacent to the Snake River which provides winter habitat for 40 to 70 bald eagles (3 to 5 along the WSA boundaries). The bald eagle is a Federal threatened species in Oregon under the Endangered Species Act. The WSA offers potential habitat for Rocky Mountain bighorn sheep.

Inventories along the western edge of the WSA have identified prehistoric rock cairns, isolated artifacts and small lithic scatters. An old, Indian trail crosses the WSA following a ridgeline from the Snake River to North Pine Creek.
Diversity in the National Wilderness Preservation System (NWPS)

According to the Bailey-Kuchler system for classifying ecosystems, the WSA is in the Rocky Mountain Forest Province and has a potential natural vegetation of wheatgrass-bluegrass and grand fir-Douglas fir forest.

Seven plant communities listed in the Ochoco, Blue and Wallowa Mountain section of the Oregon Natural Heritage Plan occur in this area: Douglas fir-ponderosa pine/pinegrass, Douglas fir ponderosa pine/elk sedge, Douglas fir/mallow ninebark in the Douglas fir zone, bluebunch wheatgrass-Idaho fescue, Sandberg's bluegrass complex, big sagebrush-bunchgrass community inside forest zone, and bitterbrush/bunchgrass.

There are four standard metropolitan statistical areas with population over 100,000 within five hours' driving time of the WSA: Boise, Idaho and Spokane, Yakima, and Richland/Kennewick/Pasco, Washington.

Energy and Mineral Development

The primary source for evaluation of the geology and energy and mineral potential of the Homestead WSA comes from a report written by WGM, Inc., a consulting firm under contract with BLM. Using this report, the study area was reevaluated by BLM geologists during June 1987.

The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. Table 3 shows the classification for the WSA.

Most of the southern half and the western edge of the northern half of the WSA is capped by Tertiary age basalt flows which once covered the entire area. Over a portion of the WSA the basalt flows have been eroded, exposing pre-Tertiary age rocks, which for the most part are marine volcanioclastic rocks and submarine lava flows with minor amounts of marine limestone. These rocks have undergone low grade metamorphism, faulting, folding and shearing. In some areas hydrothermal processes, have caused metallic mineralization along faults, shear zones, and in permeable rock units.

Energy Resources

Based on indirect evidence and quantitatively minimal direct evidence, the entire WSA is considered to have low potential for occurrence of energy resources. This rating is based on a lack of geologic evidence, no known source for petroleum, coal and geothermal resources, and the absence of any existing mineral leases. As of October 16, 1987, there were no oil and gas, geothermal or coal leases located within the WSA.

Mineral Resources

Copper, gold, and silver mineralization has been discovered at three locations along the eastern edge of the northern portion of the WSA in pre-Tertiary rocks. Numerous metallic mineral occurrences or deposits, including the Iron Dyke mine (an operating underground, copper, gold and silver mine located just outside the boundary of the WSA) have been identified in the general area surrounding the Homestead WSA.

Based on abundant direct and indirect evidence, the entire WSA is considered to have high potential for the occurrence of copper, gold and silver mineralization. All other mineral resources have low potential for occurrence. As of October 16, 1987, 48 pre-FLPMA, lode mining claims were located within or partially within the WSA.

Vegetation

Although the predominate vegetation in the WSA is Douglas fir and ponderosa pine with an understory of grasses, a variety of plant species may be found here. This includes bitterbrush, elderberry, hawthorne, poison ivy, snowberry, bunchgrass, cheatgrass and medusahed. McClain Gulch provides habitat for a variety of riparian species including rushes, sedges, rose and willows. Much of this riparian vegetation is pristine because the steep, rocky terrain has prevented livestock grazing. The majority of the vegetation is in a mid- to late seral stage, with a static to upward trend. The flat benches are in an early seral stage, dominated by cheatgrass and medusahead with a static trend.

A plant species of special interest (mentioned in the Special Features section) is found in the WSA: Allium madidum (swamp onion). This plant is considered to be limited in abundance throughout its range. (Oregon Natural Heritage Data Base, 1987.)
Wood Products

There are 330 acres of forest land in the WSA. They are considered economically non-operable for harvest and are excluded from the Baker Resource Area’s allowable cut base. These acres are considered old growth set aside for wildlife as identified in the Baker RMP. The Forest Service portion of the WSA contains no commercial timber.

Wildlife

Much of the wildlife habitat in the WSA is in good condition, especially the steep, upper slopes which are covered with bluebunch wheatgrass. The lower, flatter areas are in poor condition and dominated by cheatgrass. The lower one-third of the riparian zones are in poor condition whereas the upper two-thirds of most of the riparian zones are in good to excellent condition with a multi-storied tree-shrub layer. Conifer forests dominate the ridgetop and the upper portion of many of the drainages. The interspersion of the various plant communities provide diversity and habitat for numerous wildlife species, including mountain lion, black bear, mule deer, elk, song birds, woodpeckers, chukar and blue grouse. Wintering bald eagles primarily utilize the Snake River, adjacent to the WSA, for fishing.

Winter habitat for the bald eagles is just outside the WSA boundaries. Bighorn sheep are indigenous to the area.

Watershed

The Homestead WSA contains nine perennial streams totaling 10.25 miles. There are deeply-incised side creek drainages coming into the sides of these riparian areas.

McClain Creek, the major drainage in the WSA, occurs on the Forest Service portion. This 3-mile stream flows in a southerly direction to the southern boundary. Riparian vegetation occurs along the short side drainages and in the major canyon. These zones are in excellent condition and sometimes display two or three-shrub layers. The lower one-third of the riparian zones are in poor condition whereas the upper two-thirds of most of the riparian zones are in good to excellent condition.

The soils within the WSA are a complex of several major groups. They range in depth from 10 to 60 inches and have high clay contents with low rates of permeability. They are of basalt origin, have a relatively high rock content and occur throughout the rugged basalt rims and outcrops. Slopes range from 35 percent to greater than 70 percent. These soils are all classified as highly erodable.

Livestock Grazing

Portions of nine allotments lie within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

The existing livestock development in the WSA (among the features listed in the naturalness section) is a 400-foot length of gap fence.

Due to rugged topography and lack of vehicular access, all livestock management and fence maintenance is accomplished on horseback.

Recreation Use

Big game (bear, elk and deer) and upland bird (chukar) hunting are the primary recreational activities in the WSA. Most of the current use is horse and foot traffic during big game and upland game hunting seasons. Additional visitation is associated with backpacking, photography, rockhounding and sight-seeing. Little of the recreation is associated with vehicles. Vehicle use is limited to designated routes by an ORV designation designed to protect the ACEC values. Some vehicle violations have occurred along the ridge tops causing a conflict with hikers. Some incidental day use (i.e., day hiking and some rockhounding) may be the result of the WSA’s proximity to Hells Canyon Reservoir and the Hells Canyon NRA. Overall recreation use is approximately 600 visitor days per year.

The Snake Breaks trail has been proposed to provide hiking opportunities and to prevent dispersed use from causing minor resource damage and to direct the use away from the sensitive areas.

Local Personal Income

Livestock use at the current level of 660 AUMs and recreation use totaling 600 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $7,920 for livestock grazing and $7,200 related to recreation use of the WSA, for an overall
total of 15,120. The Statewide EIS volume dis-
cusses the term local personal income and how
income figures have been derived.

4. Environmental
Consequences

Introduction

This section discusses the environmental conse-
quencies of implementing each of the alternatives.
Resources and activities not significantly affected by
any of the alternatives are not discussed. The
Statewide volume discusses certain assumptions that
were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 14,655 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All 14,655 acres of the WSA would be designated
wilderness. Wilderness values within the 14,655
acres would be protected by legislative mandate.
Wilderness values of naturalness, solitude and
primitive and unconfined recreation would be pre-
served. Special features (including undisturbed
riparian areas, large populations of wildlife, cultural
sites, outstanding scenery, and undeveloped plateaus
and canyons) would also be protected.

Naturalness

Wilderness designation would protect natural values
from most activities. However, impacts on natural-
ness from projected mineral development on existing
claims and private and split-estate lands are not BLM
actions and could occur under any of the alternatives
due to valid existing rights.

Solitude

Opportunities for solitude provided by the area’s size,
miles of winding canyons and limited vehicle access
would be preserved.

Primitive and Unconfined Recreation

Primitive and unconfined recreation opportunities
would be preserved. Since there is currently very little
vehicular access to the area there would actually be
very little change in recreational use.

Special Features

The area’s outstanding scenery and special wilder-
ness features (unusual plants and plant communities
and bald eagle habitat) would be protected by wilder-
ness designation.

Conclusion: Wilderness designation of the entire
14,655 acres within the Homestead WSA would result
in the protection of existing wilderness values.

Impacts on Energy and Mineral
Development

The Hells Canyon National Recreation Area portion of
the WSA, approximately 5,414 acres, is already
withdrawn from mineral location and leasing. Wilder-
ness designation would close an additional 8,481
acres in the WSA to all forms of mineral entry for a
total of 13,895 acres. Four parcels of split-estate land
totaling 760 acres, three parcels of private inholdings
totaling 259 acres and valid mining claims would
remain open to mineral exploration and development.

Energy Development

Exploration for oil and gas, coal, and geothermal
resources would be precluded on an additional 8,481
acres. Exploration could occur on 760 acres of split-
estate and 259 acres of private inholdings. Due to
lack of geologic evidence to justify an extensive
exploration program, only casual exploration (without
development) is expected.

Conclusion: No impact to energy development is
expected.

Mineral Development

The Hells Canyon National Recreation Area portion of
the WSA, approximately 5,414 acres, is already
withdrawn from mineral location and leasing. Wilder-
ness designation would close an additional 8,481
acres in the WSA to all forms of mineral entry for a
total of 13,895 acres.

Projected exploration for copper, gold and silver
resources would be precluded on 8,481 acres. The
1,019 acres of private and split-estate lands would be
open to mineral resource exploration and develop-
ment.
Projected exploration and development of copper, gold and silver would occur on 560 acres of split-estate land, 259 acres of private inholdings and the existing mining claims. It is projected that economic deposits will be located on the northernmost private inholding and the 560-acre split-estate parcel, and two underground mines and one open-pit mine will be developed.

As a result of wilderness designation, production from one copper/gold/silver mine would be foregone.

**Conclusion:** Production would occur from three copper/gold/silver mines. Production would be foregone from one copper/gold/silver mine.

### Impacts on Vegetation

Little or no change would take place to vegetation over most of the area because there are no projected management actions that would influence vegetation and current livestock grazing practices would continue. Vegetative composition would not be changed. Ecological status, which is mainly in mid-to late seral stage with some areas in early seral stage with a static to upward trend, would also not change. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.

**Conclusion:** Little or no change would occur to the overall vegetation in the WSA.

### Impacts on Wildlife

Wildlife habitat for the mule deer, elk, mountain lion, black bear, upland game birds and non-game species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals. There are no projected management actions that would affect wildlife populations or habitat.

**Conclusion:** Wildlife habitat and populations would be maintained throughout the WSA.

### Impacts on Watershed

The nine perennial streams, totaling 10.25 miles, would maintain their present condition under wilderness designation. Water quality would be little changed over the long term.

**Conclusion:** Watershed and water quality would be little changed from present conditions.

### Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 660 AUMs within the portions of the nine allotments in the WSA.

Livestock management and fence maintenance would continue to be accomplished by horseback. There would be no change in livestock management.

**Conclusion:** Livestock use would remain at approximately 660 AUMs, with no change in livestock management.

### Impacts on Recreation Use

Recreation use would remain essentially unchanged. Vehicle use would continue to be limited to the two dead-end roads, and the area's primitive recreation opportunities would be maintained. Development of the 9-mile Snake River Breaks Trail would direct existing use away from sensitive areas and facilitate hiking in the WSA, but would not change current use levels.

The overall recreation use level of approximately 600 visitor days per year is not expected to change.

**Conclusion:** The area's recreation use level of an estimated 600 visitor days per year would not be affected.

### Impacts on Local Personal Income

Livestock grazing would remain at 660 AUMs. Projected energy and mineral development would amount to three metallic mines. Overall recreation use would remain at 600 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

**Conclusion:** Annual local personal income generated from resource outputs in the WSA would remain at approximately $15,000.

### Partial Wilderness

Recommended suitable for wilderness: 8,773 acres (9,013 acres if the 240 acres of private land are acquired)

Recommended nonsuitable for wilderness: 5,882 acres
Impacts on Wilderness Values

The partial wilderness alternative would add 9,013 acres to the NWPS, assuming the 240-acre private inholding is acquired as proposed under this alternative. The 9,013 acres would be designated wilderness, and wilderness values within the area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features (including undisturbed riparian lands, cultural resources, large populations of wildlife, outstanding scenery and undeveloped plateaus and canyons) would also be protected. Acquisition of the private land would prevent potential disturbance from mineral exploration and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

The 5,882 acres recommended nonsuitable would be subject to the projected mineral exploration and development actions.

Naturalness

The area's naturalness would be preserved on the 9,013 acres recommended suitable. On the 5,882 acres recommended nonsuitable, projected mineral exploration and development (including four mine sites and 26 miles of new roads) would cause 85 acres of long-term surface disturbance, which would visually disturb the entire nonsuitable portion of the WSA. Because of the WSA's steep terrain, which would make extensive cut-and-fill operations necessary during exploration activities, all exploration disturbance (71 acres) must be considered long-term. It is unlikely that rehabilitation would remove these impacts from the WSA.

Solitude

Precluding the projected mineral exploration and development on the 240 acres of acquired private land would maintain solitude opportunities. Human activity associated with the projected mineral development in the nonsuitable area would impair opportunities for solitude over most of the nonsuitable portion of the WSA.

Primitive and Unconfined Recreation

The area's primitive and unconfined recreation opportunities would be preserved on the 9,013 acres recommended suitable. Acquisition of the 240 acres of private land would prevent projected mineral exploration, thus preserving a natural setting for primitive recreational pursuits. The acquisition of the 240-acre private inholding would enhance primitive recreational opportunities since the private property is located where primitive and unconfined recreation pursuits occur. On the 5,882 acres recommended nonsuitable, projected mineral exploration and development (including four mine sites and 26 miles of new roads) would directly disturb 85 acres and visually disturb all 5,882 acres, eliminating the natural setting for primitive recreation pursuits.

Special Features

Wilderness designation of 9,013 acres would preserve the area's outstanding scenery and special wilderness features (unusual plants and plant communities and bald eagle habitat) on this portion of the WSA.

The acquisition of the 240 acres of private land would prevent projected mineral exploration and development, preventing any further scarring and erosion of unique land forms, damage to cultural sites and disruption to wildlife populations.

On the 5,882 acres recommended nonsuitable, projected mineral exploration and development (including four mine sites and 26 miles of new roads) would disturb 85 acres impacting the area's outstanding scenery and special wilderness features (unusual plants and plant communities and bald eagle habitat) and would cause scarring and erosion of unique land forms, potential damage to cultural sites and disruption of wildlife populations.

Conclusion: Wilderness designation of 9,013 acres would protect and enhance existing wilderness values. On 5,882 acres not designated wilderness, wilderness values would be both directly and indirectly impaired over the entire 5,882 acres, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

The Hells Canyon National Recreation Area portion of the southern, suitable area, approximately 3,650 acres, is already withdrawn from mineral location and leasing. Wilderness designation would close another 4,885 acres of Federal land within the WSA and 240 acres of private inholdings, which the Federal government would acquire, to all forms of mineral entry and development. With 5,414 acres presently closed to mineral entry by NRA designation, the total closed area within the WSA would be 10,537 acres.
The Hells Canyon NRA portion of the northern, nonsuitable area of the WSA (approximately 1,764 acres) is withdrawn from all forms of mineral entry and development. Therefore approximately 4,118 acres of Federal land in the nonsuitable area would remain open for exploration and development of energy and mineral resources.

Energy Development

Exploration for oil and gas, coal and geothermal resources would be precluded on an additional 5,123 acres, assuming the purchase of 240 acres of private inholdings by the Federal government. Exploration could occur on 4,118 acres in the nonsuitable area. Due to lack of geologic evidence to justify an extensive exploration program, only casual exploration, without development, is expected.

Conclusion: No impact to energy development is expected.

Mineral Development

Projected exploration for copper, gold and silver resources would be precluded on an additional 5,123 acres, assuming the purchase of 240 acres of private inholdings by the Federal government. Exploration and development could occur on 4,118 acres in the nonsuitable area.

Projected exploration and development for copper, gold and silver would occur in the nonsuitable portion of the WSA, involving eventual development of four mine sites (including one open-pit mine).

Conclusion: Production from four copper/gold/silver mines would occur.

Impacts on Vegetation

On 8,773 acres recommended suitable for wilderness little or no change would take place to vegetation because there are no projected management actions that would influence vegetation, and current livestock grazing practices would continue. Vegetative composition as described in the vegetation section in the Affected Environment would not be changed. Ecological status, which is mainly in mid to late seral stage with some areas in early-seral stage with a static to upward trend, would also not change. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.

In the nonsuitable portion, projected mineral development would result in 85 acres of surface disturbance with a corresponding loss of vegetation. Riparian vegetation would also be damaged by increased erosion from the mining and road building.

Conclusion: Vegetation would be removed on 85 acres and riparian vegetation would be damaged in the nonsuitable portion of the WSA. Little or no change would occur to vegetation in the remainder of the WSA.

Impacts on Wildlife

Because of the current optimum condition and distribution of forage and cover, mining activities in the portion of the WSA not designated wilderness would destroy 85 acres of habitat and diminish the amount of cover for deer and elk, resulting in displacement of some animals. Impacts from the 26 miles of new mining roads would result in both habitat loss and increased harassment by humans. There would also be a decrease in the potential habitat for bighorn sheep.

Winter habitat for the bald eagle would be left relatively undisturbed since the habitat is just outside the WSA boundaries. Increased vehicular traffic due to increased mining activities in the area recommended nonsuitable could cause minor disturbance to the wintering bald eagle population.

Conclusion: On the area recommended suitable, wildlife habitat and populations would be maintained. On the area recommended nonsuitable, habitat for wintering mule deer and elk would be directly lost on 85 acres, wintering bald eagles would be slightly disturbed, and habitat for possible bighorn sheep expansion into the area would be decreased.

Impacts on Watershed

The nonsuitable area has the highest potential for mineral development and the greatest potential for soil disturbance. Because of the extremely steep slopes, any ground disturbance would contribute to irreparable soil loss. Mining and associated road construction would cause substantial localized soil disturbance. These impacts would include water erosion due to loss of vegetation, slumping or sloughing and wind erosion on 85 acres. The highest mineral development potential area is located in the areas of three perennial streams. Ground disturbance in these steep-sloped areas would increase erosion and stream sedimentation, and decrease bank stability and water quality. Watershed condition would be reduced over several miles of streams due to the projected mining activity.
Conclusion: Watershed condition and water quality would be reduced over several miles of streams in the WSA.

Impacts on Livestock Grazing

Livestock use would continue at the current level of approximately 660 AUMs.

Since most of the area is presently inaccessible to vehicles, livestock management would continue to be accomplished by horseback. There would be no change in livestock management.

Conclusion: Livestock use would remain at approximately 660 AUMs, with no change in livestock management.

Impacts on Recreation Use

Within the 9,013 acres recommended suitable, recreation use would remain essentially unchanged. Vehicle use would continue to be limited to the two dead-end roads, and the area's primitive recreation opportunities would be maintained. Development of the 9-mile Snake River Breaks Trail would direct existing use away from sensitive areas and facilitate hiking in the WSA, but would not change current use levels.

The 5,882 acres recommended nonsuitable would be subject to the projected mineral activity, including 26 miles of new roads. This would result in greater access but less of a natural setting within which to pursue recreational activities. Increased motorized recreation use would offset decreased use by non-motorized recreationists. The overall recreation use level of approximately 600 visitor days per year is not expected to change.

Conclusion: The area's recreation use level of 600 visitor days per year would be little affected.

Impacts on Local Personal Income

Livestock grazing would remain at 660 AUMs. Projected energy and mineral development would amount to four metallic mines. Overall recreation use would remain at 600 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected energy and mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $15,000.

No Wilderness/No Action (Proposed Action)

Recommended suitable for Wilderness: 0 acres
Recommended nonsuitable for Wilderness: 14,655 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 14,655 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features, including incised canyons, rock formations, large concentrations of wildlife, pristine vegetation, outstanding scenery and cultural sites, would be subject to the effects of the projected management actions. Projected actions include casual energy exploration, mineral development and vehicle use limited to the existing 2 miles of existing road, plus 37 miles of new roads.

Naturalness

Under this alternative, 9,241 acres outside of the Hells Canyon National Recreation Area would be subject to projected mineral exploration and development. Projected mineral activity includes four mine sites and 37 miles of new roads, which would result in 116 acres of long-term surface disturbance and would visually impair naturalness over approximately 9,000 acres (60 percent) of the WSA. Only the southernmost portion of the WSA would not be affected by disturbance from mineral exploration and development. Because of the WSA's steep terrain, which would make extensive cut-and-fill operations necessary during exploration activities, all exploration disturbance (102 acres) must be considered long-term. It is unlikely that rehabilitation would remove these impacts from the WSA.

Solitude

Human activity associated with the projected mineral development would impair opportunities for solitude in the vicinity of the four mine sites and the 37 miles of new roads. The construction of the 37 miles of access roads would also open many presently inaccessible areas to motorized recreation use. Opportunities for solitude would be impaired over approximately 9,000 acres of the WSA.
Primitive and Unconfined Recreation

Projected mineral exploration and development (including four mine sites and 37 miles of new roads) would directly disturb 116 acres and visually disturb approximately 9,000 acres, eliminating the natural setting for primitive recreation pursuits.

Vehicle use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the existing 2 miles of roads. Construction of an additional 37 miles of roads would extend this intrusion over approximately 9,000 acres.

Special Features

Projected mineral exploration and development (including four mine sites and 37 miles of new roads) would directly disturb 116 acres and visually disturb approximately 9,000 acres, impacting the area’s outstanding scenery and special wilderness features (unusual plants and plant communities and bald eagle habitat) and would cause scarring and erosion of unique land forms, potential damage to cultural sites and disruption of wildlife populations.

Conclusion: In the absence of wilderness designation, projected activities would directly and indirectly impair wilderness values over approximately 9,000 acres of the WSA, with further declines from other potential uses over the long term.

Impacts on Energy and Mineral Development

A total of 9,241 acres, outside of the Hells Canyon National Recreation Area portion of the WSA would be open to mineral entry.

Energy Development

Casual exploration for oil and gas, geothermal, and coal resources is expected on 9,241 acres. An extensive exploration/development program is not anticipated due to lack of sufficient geologic evidence to support it.

Conclusion: There would be no impact on energy development in the WSA.

Mineral Development

Projected exploration for copper, gold and silver would occur on 9,241 acres outside of the NRA portion of the WSA. Discovery of economic copper, gold and silver deposits is postulated to occur on public land located southwest of the town of Homestead, on the northernmost parcel of private inholding, and on the 560-acre split-estate parcel. Projected development of four mine sites, including one small open-pit mine, would occur.

Conclusion: Production would occur from four copper/gold/silver mines.

Impacts on Vegetation

The projected mineral development would result in 116 acres of surface disturbance, including 37 miles of new road, with a corresponding loss of vegetation. Riparian vegetation would also be damaged by increased erosion from the mining and road building.

Conclusion: Vegetation would be removed on 116 acres and riparian vegetation would be damaged.

Impacts on Wildlife

Current optimum condition and distribution of forage and cover for deer and elk would be diminished by the projected mining activities on 116 acres, resulting in a slight decrease in populations. Impacts of 37 miles of new roads from projected mining would cause both habitat loss and increased harassment by humans.

Winter habitat for the bald eagles would be left relatively undisturbed since most of their habitat is just outside the WSA boundaries. Increased vehicular traffic due to increased mining activities in the area would cause minor disturbance to the wintering bald eagle population. Reintroduction of bighorn sheep would occur outside of the WSA as planned, with some drift into the WSA. There would be some loss of prime habitat due to projected mineral activities.

Conclusion: Habitat for wintering mule deer and elk would be directly lost on 116 acres. Wintering bald eagles would be slightly disturbed. Habitat for possible bighorn sheep expansion into the area would be decreased.

Impacts on Watershed

Projected mineral development and associated road construction would cause substantial localized soil disturbance. These impacts would include water erosion due to loss of vegetation, slumping or sloughing and wind erosion on 116 acres. Ground disturbance in these steep-sloped areas would increase erosion and stream sedimentation, and decrease bank stability and water quality. Watershed condition would be reduced over several miles of streams due to the projected mining activity.
Conclusion: Watershed condition and water quality would be reduced over several miles of streams in the WSA.

Impacts on Livestock Grazing

Livestock use would continue at the current level of approximately 660 AUMs.

Since most of the area is presently inaccessible to vehicles, livestock management is presently accomplished by horseback. The additional 37 miles of road could be used for livestock management, aiding in this activity.

Conclusion: Existing livestock use would continue at 660 AUMs. Thirty-seven miles of new roads would benefit livestock management.

Impacts on Recreational Use

Motorized recreation use on the existing 2 miles of roads would be expanded to include 37 miles of new roads. Surface disturbance and disruption of wildlife from mineral exploration and development would disturb the natural setting for recreational activities, including reduced hunting opportunities due to a slight reduction of wildlife populations. Overall, however, minor declines in primitive recreation opportunities would be offset by minor increases in vehicle-dependent activities, thus maintaining current recreation use trends. The current recreation use level of approximately 600 visitor days per year is not expected to change.

Conclusion: The area’s recreation use level of 600 visitor days per year would be little affected.

Impacts on Local Personal Income

Livestock grazing would remain at 660 AUMs. Projected energy and mineral development would amount to four metallic mines. Overall recreation use would remain at 600 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be no net change from the current level, plus an unknown level of increase attributable to the projected mineral development.

Conclusion: Annual local personal income generated from resource outputs in the WSA would remain at approximately $15,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (No Wilderness/No Action), projected mineral exploration and development would lead to unavoidable adverse impacts to wilderness values as a result of 116 acres of surface disturbance, which would visually affect approximately 9,000 acres.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the proposed action, existing short-term uses would continue and future development options, including projected mineral development, would remain open. Long-term productivity of wilderness values would be directly lost on 116 acres from surface disturbance and indirectly lost on approximately 9,000 acres from visual disturbance, due to the projected mineral exploration and development. Further declines in wilderness values due to other uses would be possible over the long term.

Irreversible and Irretrievable Commitments of Resources

Under the proposed action, projected mineral exploration and development would result in an irreversible commitment of the wilderness resource on 116 acres directly, with the natural character of the WSA compromised on approximately 9,000 acres from the visual influence of these developments. There would also be an irretrievable commitment of the copper, gold and silver resource extracted.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The entire WSA has high potential for the occurrence of gold, silver and copper, but mining activity has been concentrated in the northern part of the WSA
and all of the mining claims in the WSA are located in that part of the study area. If claimants discover valuable mineral deposits before the area is designated wilderness, they could develop their claims regardless of whether wilderness values would be impaired. Potential and projected mineral development on 760 acres of split-estate lands would further decrease manageability. In view of the high mineral potential, past and current mining activity in the vicinity, the large number of claims and the likelihood of mineral development, the northern part of the area could not be managed to preserve its wilderness values.

Access to and development of the two private holdings in the southern half of the WSA could adversely affect wilderness characteristics and make management as wilderness difficult in these areas. In the past, landowners have expressed interest for access and development, including a subdivision. Road construction, with cuts and fills, would have a substantially noticeable impact upon the area’s naturalness.

**Rationale for Selection of the Proposed Action**

The no wilderness/no action alternative is the proposed action because of the benefits to be gained by leaving the area open for exploration and possible development of mineral resources. The WSA adjoins an active gold, silver and copper mine, contains 48 mining claims and is considered to have high potential for mineral development. Development of four metallic mines is projected.

The area’s wilderness qualities are limited by the absence of outstanding opportunities for solitude and the effect of developments and activities outside the area on solitude and naturalness. The WSA has some places where a visitor can achieve a sense of solitude; however, opportunities for solitude are not outstanding.

Most of the WSA is an east-facing slope, and most of the area is influenced by unnatural features. Many of these developments are major, consisting of hydroelectric dams, 350-kV powerlines, roads, major reservoirs (Oxbow and Hells Canyon Reservoirs), power substations, a bridge and highways. A visitor’s perception of the opportunities for solitude and naturalness is greatly diminished by these man-made features.

The presence of private parcels, mining claims and split-estate land within the WSA would make management as wilderness very difficult.

**6. Summary and Analysis of Public Comments**

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

**Comment:** A State trail system crosses the southern tip of the WSA on public lands. **Response:** The proposed trail system has been added to the recreation section as a management action.

**Comment:** An alternative that combines Cache Creek with this WSA and the Hells Canyon NRA should be analyzed. **Response:** A large portion of the Cache Creek area has been added to the Hells Canyon Wilderness. Congressional legislation excluded the remainder of Cache Creek from further consideration for wilderness.
Table 1. Summary of Proposed Management Under Each Alternative, Homestead WSA (OR-6-2)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Partial</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness¹</td>
<td>14,655</td>
<td>8,773</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation²</td>
<td>14,655</td>
<td>8,773</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Roads Constructed</td>
<td>10</td>
<td>26</td>
<td>37</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired³</td>
<td>0</td>
<td>240</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by Wilderness Designation⁴</td>
<td>8,481</td>
<td>4,553</td>
<td>0</td>
</tr>
<tr>
<td>Number of Mine Sites Developed</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

¹Acreage includes adjacent, jointly studied national forest lands (Homestead Further Planning Area) totaling 7,654 acres under all wilderness and 6,200 acres under the partial alternative.
²Except for 2 miles of roads, the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.
³Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.
⁴The portions of the study area in the Hells Canyon National Recreation Area (5,414 acres under all wilderness and 4,220 acres under the partial alternative) are already withdrawn from mineral location and leasing.
## Table 2. Summary of Environmental Consequences of Alternatives, Homestead WSA (OR-6-2)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire 14,655 acres within the Homestead WSA would result in the protection of existing wilderness values.</td>
<td>Wilderness designation of 9,013 acres (assuming acquisition of 240 acres of private land) would protect and enhance existing wilderness values. On the 5,682 acres not designated wilderness, wilderness values would be both directly and indirectly impaired over approximately 5,880 acres, with further declines from other potential uses over the long term.</td>
<td>In the absence of wilderness designation, projected activities would directly and indirectly impair wilderness values over approximately 9,000 acres, with further declines from other potential uses over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy development is expected. Production would occur from three copper/gold/silver mines. Production would be foregone from one copper/gold/silver mine.</td>
<td>No impact to energy development is expected. Production would occur from four copper/gold/silver mines.</td>
<td>There would be no impact on energy development. Production would occur from four copper/gold/silver mines.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Little or no change would occur to the overall vegetation in the WSA.</td>
<td>Vegetation would be removed on 65 acres and riparian vegetation would be damaged.</td>
<td>Vegetation would be removed on 116 acres and riparian vegetation would be damaged.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife habitat and populations would be maintained throughout the WSA.</td>
<td>On the area recommended suitable, wildlife habitat and populations would be maintained. On the 5,682 acres recommended nonsuitable, habitat for wintering deer and elk would be directly lost on 65 acres, minor disturbance to wintering bald eagles would occur and habitat for possible bighorn sheep expansion into the area would decrease.</td>
<td>Habitat for wintering deer and elk would be directly lost on 116 acres, minor disturbance to wintering bald eagles would occur and habitat for possible bighorn sheep expansion into the area would decrease.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Watershed and water quality would be little changed from present conditions.</td>
<td>Watershed condition and water quality would be reduced over several miles of streams in the WSA.</td>
<td>Watershed condition and water quality would be reduced over several miles of stream in the WSA.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would remain at approximately 660 AUMs, with no change in livestock management.</td>
<td>Existing livestock use would continue at 660 AUMs, with no change in livestock management.</td>
<td>Existing livestock use would continue at 660 AUMs. Thirty-seven miles of new roads would benefit livestock management.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area’s recreation use level of an estimated 600 visitor days per year would not be affected.</td>
<td>The area’s recreation use level of 600 visitor days per year would be little affected.</td>
<td>The area’s recreation use level of 600 visitor days per year would be little affected.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would remain at approximately $15,000.</td>
<td>Annual local personal income would remain at approximately $15,000.</td>
<td>Annual local personal income would remain at approximately $15,000.</td>
</tr>
</tbody>
</table>
Table 3. Classification Of Energy And Mineral Potential, Homestead WSA (OR-6-2)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level Of Potential</th>
<th>Level Of Certainty</th>
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</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Gold, &amp; Silver</td>
<td>Entire WSA</td>
<td>H</td>
<td>D</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:

Level of Potential

O - No indication for accumulations of energy/mineral resource
L - Low potential for accumulations of energy/mineral resource
M - Moderate potential for accumulations of energy/mineral resource
H - High potential for accumulations of energy/mineral resource

Level of Certainty

A - Insufficient data or no direct evidence
B - Indirect evidence available
C - Direct evidence but quantitatively minimal
D - Abundant direct and indirect evidence

Table 4. Existing Livestock Use, Homestead WSA (OR-6-2)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed AUMs in Allotment</th>
<th>Period of Use</th>
<th>Percent Allotment in WSA</th>
<th>Current Estimated Use In WSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doyle Gulch (BLM 3004)</td>
<td>140</td>
<td>04/16-06/15</td>
<td>100</td>
<td>140</td>
</tr>
<tr>
<td>Hunsaker (BLM 3005)</td>
<td>132</td>
<td>04/16-05/15</td>
<td>100</td>
<td>132</td>
</tr>
<tr>
<td>Copperfield (BLM 3007)</td>
<td>106</td>
<td>04/16-06/15</td>
<td>60</td>
<td>64</td>
</tr>
<tr>
<td>McLain Gulch (BLM 3045)</td>
<td>14</td>
<td>04/16-06/15</td>
<td>100</td>
<td>14</td>
</tr>
<tr>
<td>Doyle (USFS)</td>
<td>26(^2)</td>
<td>04/16-06/15</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Turnbull (USFS)</td>
<td>188</td>
<td>04/16-06/15</td>
<td>85</td>
<td>160</td>
</tr>
<tr>
<td>Ghost Camp (USFS)</td>
<td>20</td>
<td>04/16-06/15</td>
<td>85</td>
<td>17</td>
</tr>
<tr>
<td>Homestead (BLM 3006)</td>
<td>587(^1)</td>
<td>04/15-06/15</td>
<td>10</td>
<td>60</td>
</tr>
<tr>
<td>Double Pine (USFS)</td>
<td>150</td>
<td>04/15-06/15</td>
<td>50</td>
<td>73</td>
</tr>
<tr>
<td>Total</td>
<td>1,363</td>
<td></td>
<td></td>
<td>660</td>
</tr>
</tbody>
</table>

\(^1\)There is a sheep permit for 90 AUMs in the allotment that has been in nonuse since 1970. Only cattle AUMs are being analyzed.
\(^2\)Allotment has been vacant for 10 years.
Table 5. Effects of Alternatives on Local Personal Income, Homestead WSA (OR-6-2) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Partial Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN RESOURCE OUTPUTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>Number</td>
<td>+3</td>
<td>+4</td>
<td>+4</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>No Change</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td><strong>PERSONAL INCOME FROM PROJECTED OUTPUT CHANGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Energy &amp; Mineral Development:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Mines</td>
<td>$</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
U. S. Department of the Interior
Bureau of Land Management
Vale District
Homestead WSA
OR-6-2
LOCATION MAP

MAP 1
LEGEND

- Wilderness Study Area Boundary
- Boundary of Joint FS Study Area
- Boundary of Adjacent Wilderness Study Areas

- Recommended Suitable for Wilderness
- Recommended Non-suitable for Wilderness
- National Forest Service Land within Recommended Wilderness
- Non-Federal Land within Recommended Wilderness

U.S. Department of the Interior
Bureau of Land Management

Vale District
Homestead WSA
OR-6-2

PARTIAL ALTERNATIVE
Homestead WSA, OR-6-2. East side of WSA looking west at Holbrook Creek from across Hell's Canyon Reservoir. Within area recommended nonsuitable under the partial and proposed action (no wilderness/no action) alternatives. October 1983.

Homestead WSA, OR-6-2. East side of WSA looking southwest from across the Snake River on the Idaho side. Within area recommended nonsuitable under the partial and proposed action (no wilderness/no action) alternatives. Iron Dyke Mine is visible at photocenter, the community of Homestead is visible at the lower left and Hells Canyon reservoir is visible in the foreground. October 1983.
Sheep Mountain Wilderness Study Area (OR-6-3)

1. Introduction

General Description of the Study Area

The Sheep Mountain Wilderness Study Area (WSA) is located along Oregon State Highway 86, 65 miles northeast of Baker, Oregon, and 15 miles east of Halfway, Oregon, in Baker County. The community of Copperfield is 1.5 miles north of the study area (see Map 1).

This WSA contains 7,040 acres of public land and encloses two parcels of private land totaling 200 acres located in the north-central portion of the area (see Map 2). The study area is almost entirely surrounded by private land; public land borders the southeastern portion of the WSA for 2.5 miles.

At its longest point, the area is 6 miles from north to south; it is 3 miles wide at its southern boundary and tapers to 0.25 mile wide on the north.

The WSA is dominated by Sheep Mountain, which towers 3,230 feet above the Snake River. The area is bordered on the west and northwest by the Pine Creek drainage which forms a dramatic vertical ascent.

The slopes of the area are extremely steep to the west, north and east. An exception is in the southwest portion where a ridgetop forms a more rolling landscape. A road traverses this ridgetop and terminates at the border of the study area. A way then proceeds for approximately 0.3 mile north into the area, where a trail leads into the middle of the WSA.

Several seasonal creeks drain all sides of Sheep Mountain. Black Canyon Creek is the only perennial stream in the WSA. Black Canyon is a deeply-incised drainage flowing north to south through the southern half of the area. A flat bench surrounds the headwaters of Black Canyon Creek creating a high 1,200-acre plateau.

Several basalt pinnacles are evident on the northwest exposure of Sheep Mountain. On the north and east slopes, layers of basalt terrace the mountain from top to bottom.

The plant community on the flat bench area on top of Sheep Mountain is composed primarily of big sagebrush, squaw currant, snowberry, buckwheat and bluebunch wheatgrass. The timber in the WSA is predominately old growth: 142 acres dominated by ponderosa pine and 81 acres dominated by Douglas fir. These trees are found on the moist, flatter areas of the steep draws. They are considered economically non-operable for harvest and are excluded from the Baker Resource Area's allowable cut base. These acres are considered old growth set aside for wildlife as proposed by the Baker RMP. Grassy slopes consisting of Idaho fescue and bluebunch wheatgrass are found on the south and west aspects adjacent to the flat.

Interrelationships

Sheep Mountain WSA lies 0.5 mile southeast of the Homestead WSA (OR-6-2) and Hells Canyon National Recreation Area. A combination of relatively-continuous National Forest and BLM wilderness and BLM wilderness study areas extends approximately 60 miles along the west side of the Snake River from the mouth of the Imnaha River to immediately north of the Brownlee Dam.

A Forest Service radio repeater station is located near the summit of Sheep Mountain. A helicopter is used to transport maintenance personnel to the repeater twice a year, with the maintenance visits lasting about two hours.

A portion of the WSA near the Snake River is part of a power site reserve and Federal Energy Regulatory Commission classification which earmark the land for potential water power and water storage development. These "withdrawals" are scheduled for review...
in the next few years, which may lead to their revocation. Power site development has already resulted in the Oxbow Reservoir on the River below this WSA, but it is not inundating any of the WSA. Such development is, therefore, not discussed further.

The entire WSA falls within lands which were ceded to the U.S. Government by the Nez Perce Indian Tribe by ratified treaty. This treaty reserved rights for hunting, fishing, and gathering in usual and accustomed places and grazing livestock on unclaimed land. There are presently no lands within the WSA that are not under grazing permits.

The entire WSA falls within an area that has been designated as an Area of Critical Environmental Concern (ACEC). The 7,040-acre WSA contains outstanding scenic qualities, wildlife and bald eagle habitat.

Special management provisions to protect these qualities include:

- exclusion of harvest of economically non-operable timber,
- seasonal restrictions for oil and gas exploration and development,
- off-road vehicle use limited to designated roads and ways, and
- acquisition of private inholdings to benefit bald eagle habitat.

These restrictions would continue to apply throughout the designated ACEC, whether or not the area is designated wilderness.

The WSA is located within the Oregon Department of Fish and Wildlife’s (ODFW) Pine Creek Wildlife Unit which contains 366-square-miles of land area. The WSA supports summer populations of 25 to 40 elk and 50 to 150 mule deer. ODFW manages the Pine Creek Unit to produce 10 bucks per 100 does of deer and 5 bulls per 100 cows of elk. Other game animals found in the area are black bear, mountain lion, bobcat, blue grouse and chukar. The ODFW Bighorn Sheep Management Plan of 1986 proposes a Rocky Mountain bighorn sheep transplant in the WSA, which was historically bighorn sheep habitat. A population of 75 to 85 bald eagles use habitat within the WSA during the winter months. The bald eagle is classified as a Federal threatened species in Oregon under the Endangered Species Act. The goal for nongame wildlife is to maintain populations of naturally-occurring species at self-sustaining levels. The proposed action for this WSA conforms with ODFW management goals for game and nongame wildlife species.

Baker County has not identified any conflicts between the proposed action and county plans.

Scoping

Issues relating to each WSA were raised by BLM and the public during the wilderness inventory and EIS planning and scoping process. These issues concern both the effects of wilderness designation on existing and potential land uses or resources in the WSA, as well as the effects of existing and potential land uses or resources on wilderness values. Land uses or resources raised as issues specifically for this WSA include:

- impact on use of helicopter flights to service the Forest Service’s radio repeater tower in the WSA, (Helicopter access for maintenance of the radio repeater tower would continue under all of the alternatives. This could adversely affect solitude for a maximum of four hours a year. It would be possible to lessen this impact by scheduling the maintenance to avoid the recreation use seasons. This issue is not discussed further in this appendix.),

- impact on the area’s wilderness values,
- impact on off-road-vehicle (ORV) use of a way in the WSA,
- impact on access to private land (effects of wilder-
ness designation on private lands are discussed in the Statewide EIS volume),
- impact on potential energy and mineral exploration and development,
- impact on wintering bald eagles, elk, deer and other wildlife species,
- impact on plant species of special interest,
- impact on livestock grazing management and use levels, and
- impact on recreation use levels.

No other issues specific to this WSA were raised by the BLM or the public.

2. Description of Alternatives

This section describes the resource management and development actions planned or projected to occur under each alternative. Projections are based on current conditions and trends and represent a best professional estimate of reasonably forseeable future actions. Unforeseen changes in such factors as economics, demand, and Federal, State and local laws and policies could result in different outcomes.
than those projected for this analysis. The actions described for each alternative with a suitable recommendation also include predictions, for analysis purposes, as to whether or not a projected action would be allowed under wilderness designation. These predictions are based on the Wilderness Management Policy (September 1981) and professional judgment regarding approximate project locations, general site conditions, and design features commonly applied to the various types of projects expected. No definitive forecast of the outcome of a site-specific analysis required prior to implementation of any project in a wilderness area can be made.

The following alternatives are analyzed:

- all wilderness
- enhanced wilderness (proposed action)
- no wilderness/no action

A partial alternative is not analyzed because there are no major resource conflicts that would warrant recommending only a part of the WSA as suitable for wilderness.

All Wilderness

Under the all wilderness alternative, all 7,040 acres of public land in the Sheep Mountain WSA would be recommended suitable as wilderness (see map 2). For purposes of analysis, it is assumed the two parcels of private inholdings would not be acquired. The 0.3-mile way would be closed to all vehicle use.

Energy and Mineral Development Actions

Wilderness designation would close 7,040 acres within the WSA to all forms of mineral entry. Two parcels of private land, totaling 200 acres, would remain open to mineral exploration and development at the landowner’s discretion.

No exploration or development of energy resources on the private land is projected due to low potential for occurrence of energy resources. Only casual, non-surface disturbing, exploration for copper, gold and silver (which have moderate potential for occurrence) is projected on the private land due to no known deposits or occurrences, lack of direct evidence indicating favorability and a thick basalt cap.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals and in a manner consistent with BLM’s wilderness management policy. The primary manner in which habitat is managed to meet wildlife goals is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

A proposal to reintroduce bighorn sheep within the next five years has been made by ODFW. Initially, about 20 animals would be transplanted into the WSA, and the ultimate herd size is expected to reach 125 animals. Reintroduction of the Columbian sharp-tail grouse (now extirpated in Oregon) is also projected for some future date. These reintroductions would not require the development of any wildlife projects to meet habitat needs.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 30 AUMs within the Pine Valley allotment. The season of use would remain as identified in Table 4 for the allotment. No livestock improvements are proposed in the WSA. Vehicle use for livestock management on 0.3 mile of way would be precluded. Management of livestock and maintenance of two springs would be conducted mainly by horseback. Maintenance of the southern spring, due to the complexity of the development, would require the use of heavy equipment approximately once every seven years. This would require the use of 0.1 mile of way.

Recreation Management Actions

The entire 7,040 acres of public land would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 0.3 mile of way. A 4.5-mile foot trail is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon National Recreation Area. Trail construction within the WSA would include only rock cairns in a point-to-point trail concept. Presently 3.0 miles of the trail have been completed. The remaining 1.5 miles would be constructed under this alternative. A small cabin exists
near the center of the WSA and will be maintained as an overnight stop for persons utilizing the Snake River Breaks Trail. Current recreational use is estimated to be 500 visitor days per year.

Enhanced Wilderness (Proposed Action)

Under the enhanced wilderness alternative, 7,040 acres of public land would be recommended suitable as wilderness (see Map 3). In addition, an attempt would be made to acquire the 200 acres of private inholdings through purchase or exchange with willing owners. Assuming acquisition of these inholdings, the total area recommended suitable under this alternative would be 7,240 acres.

The 0.3 mile of way would be closed to all vehicle use.

Energy and Mineral Development Actions

Wilderness designation would close 7,240 acres within the WSA to all forms of mineral entry, including 200 acres of private inholdings if acquisition is successful. However, no exploration or development of energy resources is projected due to low potential for occurrence of energy resources. Projected casual and non-surface-disturbing, exploration for copper, gold, and silver (which have moderate potential for occurrence based on indirect evidence) would be prohibited.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations as described in the all wilderness alternative. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

A proposal to reintroduce bighorn sheep, within the next five years, has been made by ODFW. Initially, about 20 animals would be transplanted into the WSA, and the ultimate herd size is expected to reach 125 animals. Reintroduction of the Columbian sharp-tail grouse (now extirpated in Oregon) is also projected for some future date. These reintroductions would not require the development of any wildlife projects to meet habitat needs.

Livestock Management Actions

Livestock use would remain at the current use level of approximately 30 AUMs within the Pine Valley allotment. The season of use would remain as identified in Table 4 for the allotment. No livestock improvements are proposed in the WSA. Vehicle use for livestock management on 0.3 mile of way would be precluded. Management of livestock and maintenance of two springs would be conducted mainly by horseback. Maintenance of the southern spring, due to the complexity of the development, would require the use of heavy equipment approximately once every seven years. This would require the use of 0.1 mile of way.

Recreation Management Actions

The entire 7,240 acres designated as wilderness, assuming the acquisition of 200 acres of private land, would be closed to motorized vehicle use. Presently, vehicle use is limited by vehicle designation to 0.3 mile of way. A 4.5-mile foot trail is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon National Recreation Area. Trail construction within the WSA would include only rock cairns in a point-to-point trail concept. Presently 3.0 miles of the trail have been completed. The remaining 1.5 miles would be constructed under this alternative. A small cabin exists near the center of the WSA and will be maintained as an overnight stop for persons utilizing the Snake River Breaks Trail. Current recreational use is estimated to be 500 visitor days per year.

No Wilderness/No Action

The no wilderness/no action alternative would recommend the entire WSA nonsuitable as wilderness. It represents the situation most likely to occur without wilderness designation.

Energy and Mineral Development Actions

All 7,040 acres of public land within the WSA would be open to all forms of mineral entry. However, no exploration or development of energy resources is projected due to low potential for occurrence of energy resources. Only casual exploration for copper, gold and silver is projected due to a lack of direct evidence indicating favorability, no known mineral deposits or occurrences, no mining claims located
within the WSA and a thick cap of basalt covering the older rocks over much of the WSA.

Wildlife Habitat Management Actions

Habitat would be managed to support existing wildlife populations in accordance with ODFW management goals. The primary manner in which habitat is managed to meet wildlife requirements is through review or development of grazing allotment management plans, wildlife habitat management plans and land use plan updates which ensure sufficient forage and cover for wildlife. No wildlife projects are proposed.

A proposal to reintroduce bighorn sheep within the next five years has been made by ODFW. Initially, about 20 animals would be transplanted into the WSA, and the ultimate herd size is expected to reach 125 animals. Reintroduction of the Columbian sharp-tail grouse (now extirpated in Oregon) is also projected for some future date, as is the introduction of wild turkeys, a species that is not native to Oregon. These wildlife transplants would not require the development of any wildlife projects to meet habitat needs.

Livestock Management Actions

Livestock use would remain at the current level and season of use as identified in Table 4. No livestock improvements are proposed in the WSA. Livestock management and maintenance of the northern spring would continue to be by horseback. Vehicle use for livestock management and maintenance of the southern spring would continue on 0.1 mile of way. The way is used approximately 15 times per year.

Recreation Management Actions

Vehicle use would continue to be restricted to the existing 0.3 mile of way. A 4.5-mile foot trail, point-to-point cairn placement, is proposed as a component of the Snake River Breaks Trail that will take visitors from Farewell Bend to the Hells Canyon National Recreation Area. Presently 3.0 miles of the trail have been completed. The remaining 1.5 miles will be constructed under this alternative. A small cabin exists near the center of the WSA and will be maintained as an overnight stop for persons utilizing the Snake River Breaks Trail. Current recreational use is estimated to be 500 visitor days per year.

Summary

Table 1 summarizes the projected management actions under each alternative. Table 2 summarizes the environmental consequences of each alternative.

3. Affected Environment

This section discusses only those major environmental conditions that describe the character of the study area, or that may be affected by the alternatives.

Wilderness Values

Naturalness

Unnatural features are generally not noticeable within the Sheep Mountain study area. Six developments within the WSA affect the area’s naturalness: a hiking trail, radio repeater station, log cabin, two spring developments and a way extending 0.3 miles into the southern end of the WSA. They are fairly well dispersed, visually influencing approximately 700 acres (10 percent) of the WSA.

With the exception of the radio repeater, these internal features are well screened by topography and vegetation. The radio repeater site sits on top of a knoll near the area’s summit and can be seen from much of the summit. However, due to its small size and color, it is a minor intrusion.

Developments outside the area but visible from within the area include: fences; Brownlee, Oxbow and Hells Canyon reservoirs on the Snake River; houses; resorts; powerlines; dams; and roads. All of the outside influences are located within 2 miles of the WSA. For the most part, the portions of the WSA most heavily influenced by the outside developments - the steep slopes facing the developments - are the portions least likely to be used by wilderness visitors. The developments cannot be seen from the relatively flat top of Sheep Mountain.

Opportunities for Solitude or Primitive and Unconfined Types of Recreation

Opportunities for solitude and primitive recreation are outstanding in portions of the WSA where topography or vegetation screen the visitor from outside sights.
and sounds and other users. The deeply-cut drainages and dense riparian vegetation in the northern portion of the area provide both topographic and vegetative screening.

The best places to find secluded within the WSA are at the head of Sheep Creek, the head of Black Canyon Creek and its associated flat, and in the southwest corner of the study area. A combination of coniferous vegetation and topography along upper Sheep Creek screens human disturbances from view. Topography provides screening in upper Black Canyon Creek. This large, flat basin is encircled by a slightly higher lip formation which confines the visitor's view to the basin and higher elevations outside the area.

The northern extension of the study area consists of a narrow, north-south ridge. There is little vegetative or topographical screening to lessen the influence from outside sights and sounds. These sights and sounds include roads, traffic, boating use, powerlines and resorts.

The Sheep Mountain hiking trail traverses the part of the WSA which is most screened from activities outside the WSA. The 3-mile trail, which is marked by rock cairns, starts in the southwest corner of the WSA and ends at a cabin at the head of Sheep Creek.

Day hiking and backpacking opportunities are outstanding in all but the northern extension of the WSA. There is good vehicular access to the south, with a road approaching the hogback ridge. Sightseeing and big game and upland bird hunting are excellent. The area is inhabited by deer, elk, bear, mountain lion and countless chukar partridge.

Special Features

Many unusual plant species and specialized plant communities occur in or near the Snake River canyon. A high concentration of endemic species generally results in many one-of-a-kind plant associations or communities. The Snake River Canyon is second only to the Siskiyou Mountains in the Pacific Northwest in this regard.

Four plant species of special interest have been identified in the study area. (See the Vegetation section for more information.)

The Snake River Canyon is also important for its biological diversity. It is considered by many botanists to be a center of evolution for many groups of species, botanically linking the Pacific Northwest with regions far to the south, such as the Mojave Desert. The Snake River, adjacent to the east side of the WSA, and the WSA provide wintering habitat for 75 to 85 northern bald eagles, a species that is Federally listed as threatened in Oregon. Two winter roosts have been located within the WSA boundaries. One roost containing 20 to 30 eagles is located inside the WSA near the eastern boundary. The second roost, which was discovered during the winter of 1988/1989, contains approximately 55 eagles. In addition, a bald eagle roosting area has been located 300 yards outside of the WSA's western boundary.

The WSA contains suitable habitat for bighorn sheep and sharp-tail grouse transplants. Sharp-tail grouse is a Federal candidate species for listing under the Endangered Species Act.

Two cultural sites have been identified in the WSA. One site is an intact historic log cabin, located at the head of a creek near the hiking trail. The cabin has been maintained for use as a hunting cabin; this current use is unauthorized. The second site is a temporary prehistoric hunting camp.

Diversity in the National Wilderness Preservation System (NWPS)

According to the Bailey-Kuchler system of classifying ecosystems, the WSA is in the Northern Rocky Mountains Forest Province, and the potential natural vegetation in the WSA is wheatgrass-bluegrass.

Plant communities listed in the Ochoco, Blue and Wallowa Mountains section of the Oregon Natural Heritage Plan and found in the WSA include: ponderosa pine-Douglas fir/ninebark, bluebunch wheatgrass-Sandberg's bluegrass, Idaho fescue-bluebunch wheatgrass, big sagebrush/bunchgrass in forest zone, and bitterbrush/bunchgrass.

There are four standard metropolitan statistical areas with population over 100,000 within five hours' driving time of the WSA: Boise, Idaho; and Spokane, Yakima, and Richland/Pasco/Kennewick, Washington.

Energy and Mineral Development

The primary source for evaluation of the geology and energy and mineral potential of the Sheep Mountain WSA comes from a report written by WGM, Inc., a consulting firm under contract with BLM. Using this report, the study area was re-evaluated by BLM geologists during June, 1987.
The WSA has been classified according to a rating system that indicates both the potential for occurrence (geologic favorability) of certain minerals, as well as the quantity and quality of data on which the rating is based (confidence level). A description of the rating system is provided in the Statewide EIS volume. Table 3 shows the energy and mineral classifications for the WSA.

The rocks exposed at the surface of the WSA are mostly Tertiary age basalt flows. In the central part of the WSA, the basalt flows exceed 2,000 feet in thickness. Older, pre-Tertiary age rocks are exposed in a small area in the southeastern corner of the WSA. Therefore, it is likely that the basalt flows are underlain by the same Permian to Triassic age rocks exposed in the Homestead WSA.

The pre-Tertiary age rocks are for the most part marine volcaniclastic rocks and lava flows with minor amounts of marine limestone. These rocks have undergone metamorphism, faulting, folding and shearing. In some areas, hot mineralized fluids have deposited metallic minerals along faults and shear zones and in limestone and other permeable rock units. The major structural feature in the WSA is the Oxbow-Cuprum shear zone which crosses the southeastern corner of the WSA.

Energy Resources

Based on indirect and minimal direct evidence, the entire WSA is considered to have low potential for occurrence of energy resources. As of October 16, 1987, there were no oil and gas, geothermal or coal leases located within the WSA.

Mineral Resources

Based on indirect evidence, the entire WSA is considered to have moderate potential for the occurrence of copper, gold, and silver. This potential is based on the presence, in the southeastern corner of the WSA, of the same pre-Tertiary rocks which are exposed north of the WSA and are mineralized in many locations. As of October 16, 1987, there were no mining claims in the WSA.

Vegetation

The vegetation of the flat bench area on the top of Sheep Mountain is composed primarily of big sagebrush, squaw currant, snowberry and buckwheat, with a grass understory of bluebunch wheatgrass. Grassy slopes consisting of Idaho fescue and bluebunch wheatgrass are found on the south and west aspects adjacent to the flat. Most of the vegetation is in a late seral stage with the remainder in a mid-seral stage, with a static to upward trend. Black Canyon Creek provides habitat for a variety of riparian species including Kentucky bluegrass, willows, hawthorne, and mock-orange. Much of this vegetation is pristine because the cliffs have prevented livestock grazing.

Old growth ponderosa pine and Douglas fir with a grass understory can be found on moist, flatter areas of drainages.

Cusick’s camas (Camassia cusickii), Thyme-leaved buckwheat (Eriogonum thymoides), and Swamp onion (Allium madidum), all candidate species for Federal listing under the Endangered Species Act, have been found in the WSA. Sticky phlox (Phlox viscida) is currently under review for possible listing on the Oregon list of Rare, Threatened, and Endangered Vascular Plants. No known sensitive plants have been found that are on the Interim Oregon State Sensitive Species List.

Wildlife

Most wildlife habitat in the WSA is in good condition. The majority of the area has extremely steep canyon walls. The southerly aspects are dominated by grass whereas the northerly aspects are covered by mountain browse and scattered conifer tree pockets. The small sagebrush-covered flat on top enhances the habitat diversity of the area. The interspersion of forage and cover types provides good quality habitat for the 25 to 40 elk and 50 to 150 mule deer that summer in this area. The elevational relief within this area provides numerous niches for a high diversity of wildlife species such as black bears, mountain lions, bobcats, bald eagles, red-tailed hawks, kestrels, song birds, chukars, blue grouse, rodents and coyotes.

Approximately 75 to 85 northern bald eagles winter within the WSA, and another roost site is found immediately adjacent to the WSA boundaries. The bald eagle is classified as a Federal threatened species in Oregon under the Endangered Species Act.

The WSA provides suitable habitat for bighorn sheep, Columbia sharp-tail grouse, and wild turkeys. Bighorn sheep and sharp-tail grouse (a Federal candidate species for listing under the Endangered Species Act) are native to the area. Wild turkeys are not.

Due to the steepness of slopes, most riparian zones are in good condition and are well vegetated with a variety of woody plant species.
Watershed

Black Canyon Creek is the only perennial stream in the WSA. It runs from north to south for approximately 2.3 miles within the WSA. This waterway has a narrow riparian zone with very steep, bare and rocky slopes. Water quality and channel conditions on this stream are good. There are eight ephemeral streams within the WSA (approximately 7 miles in length).

Livestock Grazing

A portion of the Sheep Mountain allotment lies within the WSA. Currently, all public lands in the WSA are leased for livestock grazing. Table 4 summarizes existing livestock use in AUMs.

Existing livestock developments include two springs.

Livestock operators use motor vehicles on the way three times per year for the southern spring inspection and maintenance. Due to rugged topography and the general lack of vehicular access into the WSA, all of the routine livestock management is accomplished on horseback.

Recreation Use

Big game (elk, deer, bear, mountain lion) and upland game (chukar partridge) hunting are the most popular recreational activities in the WSA. Other recreation use includes day hiking, photography, wildlife viewing, rockhounding and sightseeing.

A large percentage of the day use and rockhounding occurs because of the WSA’s proximity to Hells Canyon, Oxbow and Brownlee Reservoirs and Hells Canyon National Recreation Area. Rockhounding specimens include Oregon jade, green moss agate, jasper agatized wood, and thunder eggs.

Overall recreation use of the area is estimated to be 500 visitor days per year. Most of this use is horse and foot traffic during big game and upland game hunting seasons.

Local Personal Income

Livestock use at the current level of 30 AUMs and recreation use totaling 500 visitor days per year are the primary resource outputs that generate economic activity in the WSA. Local personal income generated annually from these existing use levels amounts to approximately $360 for livestock grazing and $6,000 related to recreation use of the WSA, for an overall total of $6,360. The Statewide EIS volume discusses the term local personal income and how income figures have been derived.

4. Environmental Consequences

Introduction

This section discusses the environmental consequences of implementing each of the alternatives. Resources and activities not significantly affected by any of the alternatives are not discussed. The Statewide volume discusses certain assumptions that were made for this analysis.

Impacts of the Alternatives

All Wilderness

Recommended suitable for wilderness: 7,040 acres
Recommended nonsuitable for wilderness: 0 acres

Impacts on Wilderness Values

All 7,040 acres of the WSA would be designated wilderness. Wilderness values within the entire 7,040 acres would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features (including undisturbed riparian areas, large populations of wildlife, cultural sites, outstanding scenery, and undeveloped plateaus and canyons) would also be protected.

Naturalness

Precluding vehicle use on the way extending 0.3 mile into the southern end of the WSA would enhance naturalness in the vicinity of the way. Within two or three growing seasons, the way would revegetate, making it unnoticeable and eliminating its influence on approximately 20 acres (less than one percent) of the study area. Heavy equipment may use 0.1 mile of the way once every seven years to maintain a spring. This infrequent use would not prevent revegetation of the way.
Continued development of the hiking trail would cause only a minimal disturbance because it would involve only the placement of unobtrusive rock cairns. Maintenance of the existing cabin would cause no additional disturbance to naturalness.

**Solitude**

Opportunities for solitude provided by the area's size, miles of winding canyons and limited vehicle access would be enhanced through the elimination of motorized use on the 0.3 mile of way. Vehicles would be limited to roads outside the WSA. This reduction in vehicular access would provide an area for people to hike into and experience solitude with no disturbance from vehicle use.

Short-term disturbance of opportunities for solitude would occur during spring and cabin maintenance, and during trail construction. Primitive and Unconfined Recreation

Closure of the 0.3 mile of way to motorized use would increase opportunities for primitive and unconfined recreation opportunities such as hiking, backpacking, camping and horseback riding. The quality of hunting, bird watching, photography and sightseeing experiences would improve with the removal of vehicles and the rehabilitation of the way. A more natural, primitive, wild setting would be provided.

The reintroduction of bighorn sheep and sharp-tail grouse would improve wildlife viewing opportunities, and eventually, hunting opportunities.

**Special Features**

Under wilderness designation, the area's outstanding scenery and special wilderness features (unusual plants and plant communities and bald eagle habitat) would be protected.

If the cabin qualifies for the National Register, and its use for compatible recreation purposes would have no effect on its historic character, the structure may be stabilized or restored and retained as historic feature. Even if the cabin does not qualify, it will be maintained. Therefore, the cabin would be maintained under wilderness designation.

Reintroduction of sharp-tail grouse, which is a Federal candidate species for listing under the Endangered Species Act, and bighorn sheep would add these species to the WSA's special features.

**Conclusion:** Wilderness designation of the entire 7,040 acres within the Sheep Mountain WSA would result in the protection and enhancement of existing wilderness values.

**Impacts on Energy and Mineral Development**

Wilderness designation would close 7,040 acres of public land within the WSA to all forms of mineral entry. The 200 acres of private land would remain open to mineral exploration.

**Energy Development**

Exploration for energy resources would be precluded on 7,040 acres. However, no exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

**Conclusion:** No impact to energy development is expected.

**Mineral Development**

Projected casual exploration for copper, gold and silver resources would be prohibited on 7,040 acres. Only casual exploration is projected for 200 acres of private inholdings due to a lack of direct evidence indicating favorability, no known mineral deposits or occurrences, no mining claims located within the WSA and a thick cap of basalt covering the older rocks over much of the WSA.

**Conclusion:** No impact to mineral development is expected.

**Impacts on Vegetation**

Under the all wilderness alternative, little or no change would take place to vegetation over most of the area because there are no projected management actions that would influence vegetation and grazing would continue at present levels. Vegetative composition as described in the vegetation section in the Affected Environment would not be changed. Ecological condition, which is mainly in late seral stage with some areas in mid-seral stage with a static to upward trend, would also not change. Utilization of key forage species would remain at approximately 40 per cent with a corresponding maintenance of residual ground cover.

The 0.3 mile of way, once closed to vehicles, would revegetate within approximately two growing seasons.
Conclusion: The 0.3 mile of way would revegetate. Little or no change would occur to vegetation on the rest of the area.

Impacts on Wildlife

Wildlife habitat for 25 to 40 elk, 50 to 150 mule deer, bear, mountain lion, bobcat, chukar, blue grouse and nongame wildlife species would be maintained under wilderness designation. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals.

Proposed transplants for bighorn sheep and sharp-tail grouse would occur. Initially, about 20 bighorn sheep would be introduced into the WSA, but the herd is expected to grow to approximately 125 animals. The sharp-tail grouse population is expected to reach approximately 300 birds. Wild turkey transplants would be precluded under this alternative because introduction of exotic wildlife species is prohibited within the boundaries of wilderness areas.

Closing the 0.3 mile way would have little impact on wildlife resources.

Conclusion: Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep and sharp-tail grouse transplants would occur.

Impacts on Watershed

Since there are no projected actions that would influence Black Canyon Creek, stream condition and water quality would remain good in the area’s one perennial stream.

Conclusion: Watershed condition and water quality would remain good.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 30 AUMs within the portion of the allotment in the WSA.

Vehicle use on 0.3 mile of way for routine spring inspection/maintenance would be precluded under wilderness designation. This would result in minor inconvenience to livestock operators. Much of the area is presently inaccessible to vehicles, so livestock management is currently accomplished by horseback. Heavy equipment may be used once every seven years for maintenance of the southern spring. This infrequent use would involve 0.1 mile of the way.

Conclusion: Livestock use would remain at 30 AUMs. The closure of 0.3 mile of way would cause minor inconvenience to livestock operators.

Impacts on Recreation Use

Closing the 0.3-mile way would cause a slight decrease in vehicle-based recreation such as hunting. However, because vehicle-based recreation is light there would be little impact on recreation use levels.

Completion of the hiking trail and transplants of bighorn sheep and sharp-tail grouse would contribute to increased recreational use of the WSA because they would improve opportunities for activities such as hunting, wildlife viewing and backpacking. In addition, as the public becomes aware of the area’s wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users is expected.

The overall recreation use level is projected to increase from the current level of approximately 500 visitor days per year to approximately 1,000 visitor days per year.

Conclusion: The area’s recreation use level of an estimated 500 visitor days per year would increase to approximately 1,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 30 AUMs and overall recreation use would increase by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

Enhanced Wilderness (Proposed Action)

Recommended suitable for wilderness: 7,040 acres (7,240 if the 200 acres of private land is acquired)

Recommended nonsuitable for wilderness: 0 acres
Impacts on Wilderness Values

The enhanced wilderness alternative would add 7,240 acres to the NWPS, assuming the 200-acre private inholding is acquired as proposed under this alternative. The 0.3 mile of way would be closed. All of the WSA would be designated wilderness, and wilderness values within the entire area would be protected by legislative mandate. Wilderness values of naturalness, solitude and primitive and unconfined recreation would be preserved. Special features, including undisturbed riparian lands, cultural resources, large populations of wildlife, outstanding scenery and undeveloped plateaus and canyons would also be protected. Acquisition of the private land would prevent disturbance from potential incompatible uses in the long term and ensure the preservation of naturalness and opportunities for solitude and primitive recreation.

Naturalness

The effects on naturalness would be similar to the all wilderness alternative, except that this enhanced wilderness alternative also includes the acquisition of 200 acres of private land. The acquisition of the 200-acre inholding would preclude surface disturbance from potential incompatible uses in the long term, thus preserving the naturalness of the area.

Closing the 0.3-mile way would allow revegetation and eliminate its unnatural influence on approximately 20 acres (less than one percent) of the WSA. Heavy equipment may use 0.1 mile of the way once every seven years to maintain a spring. This infrequent use would not prevent revegetation of the way.

Continued development of the hiking trail would cause only a minimal disturbance because it would involve only the placement of unobtrusive rock cairns. Maintenance of the existing cabin would cause no additional disturbance to naturalness.

Solitude

The effects on solitude would be similar to the all wilderness alternative except for the additional provision of opportunities for solitude caused by the proposed acquisitions. Eliminating motorized vehicle use on 0.3 mile of way, and precluding potential incompatible activities on the 200 acres of acquired private land would increase solitude opportunities.

As under the all wilderness alternative, closing the 0.3 mile of way would increase the size of the area where wilderness visitors’ solitude would not be disturbed by vehicle use.

Short-term disturbance of opportunities for solitude would occur during spring and cabin maintenance, and during trail construction.

Primitive and Unconfined Recreation

The same increased opportunities for primitive and unconfined recreation resulting from closure of the way, identified under the all wilderness alternative, would occur under this alternative. In addition, acquisition of the 200 acres of private land would prevent potential incompatible activities, thus preserving a natural setting for primitive recreational pursuits. The elimination of vehicle use on the 0.3 mile of way and the acquisition of the 200-acre private inholding would enhance primitive recreational opportunities since the way and private property are located where primitive and unconfined recreation pursuits would occur.

The reintroduction of bighorn sheep and sharp-tail grouse would improve wildlife viewing opportunities, and eventually, hunting opportunities.

Special Features

The impacts to special features would be the same as the all wilderness alternative with the exception of the acquisition of the 200 acres of private land, which would prevent potential incompatible activities and disturbance to the area’s outstanding scenery and wildlife populations.

The area’s outstanding scenery and special wilderness features (unusual plants and plant communities and bald eagle habitat) would be protected.

If the cabin qualifies for the National Register, and its use for compatible recreation purposes would have no effect on its historic character, the structure may be stabilized or restored and retained as a historic feature. Even if the cabin does not qualify, it will be maintained. Therefore, the cabin would be maintained under this alternative.

Reintroduction of sharp-tail grouse, which is a Federal candidate species for listing under the Endangered Species Act, and bighorn sheep would add these species to the WSA’s special features.

Conclusion: Wilderness designation of 7,240 acres would protect and enhance existing wilderness values.
Impacts on Energy and Mineral Development

Wilderness designation would close 7,240 acres of public land within the WSA to all forms of mineral entry if 200 acres of private inholdings are acquired.

Energy Development

Exploration for energy resources would be precluded on all 7,240 acres. However, no exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

Conclusion: No impact to energy development is expected.

Mineral Development

Projected exploration for copper, gold and silver resources would be prohibited on all 7,240 acres. However, only casual non-surface disturbing exploration (without development) is projected due to a lack of direct evidence indicating favorability, no known mineral deposits or occurrences, no mining claims located within the WSA and a thick cap of basalt covering the older rocks over much of the WSA.

Conclusion: No impact to mineral development is expected.

Impacts on Vegetation

Little or no change would take place to vegetation over most of the area because there are no projected management actions that would influence vegetation, and grazing would continue at present levels. Vegetative composition as described in the vegetation section in the Affected Environment would not be changed. Ecological condition, which is mainly in late seral stage, with some areas in mid-seral stage with a static to upward trend, would also not change. Utilization of key forage species would remain at approximately 40 percent with a corresponding maintenance of residual ground cover.

Closure of the 0.3 mile of way would allow revegetation within approximately two growing seasons.

Conclusion: The 0.3 mile of way would revegetate. Little or no change would occur to vegetation on the rest of the area.

Impacts on Wildlife

Wildlife habitat for 25 to 40 elk, 50 to 150 mule deer, bear, mountain lion, bobcat, chukar, blue grouse and nongame wildlife species would be maintained under the enhanced wilderness alternative. Adequate wildlife forage and cover would be ensured in the preparation of livestock allotment management plan goals.

Acquisition of the 200 acres and the closing of the 0.3-mile way would have little impact on wildlife resources relative to the total land mass of the WSA and habitat diversity.

Proposed transplants for bighorn sheep and sharp-tail grouse would occur. Initially, about 20 bighorn sheep would be introduced into the WSA, but the herd is expected to grow to approximately 125 animals. The sharp-tail grouse population is expected to reach approximately 300 birds. Wild turkey transplants would be precluded under this alternative because introduction of exotic wildlife species is prohibited within the boundaries of wilderness areas.

Conclusion: Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep and sharp-tail grouse transplants would occur.

Impacts on Watershed

Since there are no projected actions that would influence Black Canyon Creek, stream condition and water quality would remain good in the area's one perennial stream.

Conclusion: Watershed condition and water quality would remain good.

Impacts on Livestock Grazing

Livestock use would remain at the current use level of approximately 30 AUMs within the portion of the allotment in the WSA.

Vehicle use for routine spring inspection/maintenance would be precluded on 0.3 mile of way under the enhanced wilderness designation. This would result in minor inconvenience to livestock operators. Much of the area is presently inaccessible to vehicles, and livestock management is currently accomplished by horseback. Heavy equipment may be used once every seven years for maintenance of the southern spring. This infrequent use would involve 0.1 mile of the way.
Conclusion: Livestock use would remain at 30 AUMs. Vehicle use on 0.3 mile of way would be precluded, causing minor inconvenience to livestock operators.

Impacts on Recreation Use

Closing the 0.3-mile way would cause a slight decrease in vehicle-based recreation such as hunting. However, because vehicle-based recreation is light there would be little impact on recreation use levels.

Completion of the hiking trail and transplants of bighorn sheep and sharp-tail grouse would contribute to increased recreational use of the WSA because they would improve opportunities for activities such as hunting, wildlife viewing and backpacking. In addition, as the public becomes aware of the area's wilderness qualities and outstanding primitive recreation opportunities, increased visitation from wilderness users is expected.

The overall recreation use level is projected to increase from the current level of approximately 500 visitor days per year to approximately 1,000 visitor days per year.

Conclusion: The area's recreation use level of an estimated 500 visitor days per year would increase to approximately 1,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 30 AUMs and overall recreation use would increase by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

No Wilderness/No Action

Recommended suitable for Wilderness: 0 acres
Recommended nonsuitable for Wilderness: 7,040 acres

Impacts on Wilderness Values

Under the no wilderness alternative, the entire 7,040 acres would not be designated wilderness and wilderness values would not receive special legislative protection. Wilderness values of naturalness, solitude, primitive and unconfined recreation, and the area's special features (including incised canyons, rock formations, large concentrations of wildlife, pristine vegetation, outstanding scenery and opportunities for cultural studies) would be subject to the effects of the projected management actions. Projected actions include continued vehicle use limited to the existing 0.3 mile of way, completion of the hiking trail, maintenance of the cabin and transplants of bighorn sheep, sharp-tail grouse and turkey.

Naturalness

Vehicle use on the 0.3-mile way would continue the impact of the vehicle tracks upon naturalness on approximately 20 acres (less than 1 percent of the WSA). Most of this influence upon the area's naturalness occurs near the southwest boundary.

Continued development of the hiking trail would cause only a minimal disturbance because it would involve only the placement of unobtrusive rock cairns. Maintenance of the existing cabin would cause no additional disturbance to naturalness.

Solitude

Vehicle use on 0.3 mile of way would continue short-term local impairment of solitude opportunities adjacent to the way. Vehicle use mostly occurs over the southwest portion of the WSA near the boundary. Solitude opportunities in the unroaded core area and rugged winding canyons would remain unchanged.

Short-term disturbance of opportunities for solitude would occur during spring and cabin maintenance, and during trail construction.

Primitive and Unconfined Recreation

Vehicle use would continue to be limited to the existing 0.3 mile way. However, such use would continue to intrude upon primitive, non-motorized recreation opportunities in the vicinity of the 0.3 mile of way, influencing approximately 20 acres.

The reintroduction of bighorn sheep and sharp-tail grouse and the introduction of turkey would improve wildlife viewing opportunities, and eventually, hunting opportunities.

Special Features

Continued vehicle use of the existing way would maintain the impacts upon the special features
including some vistas and some disturbance to the large concentrations of wildlife. These impacts include soil compaction, minor seasonal disturbance of wildlife and impairment of scenic vistas.

Continued motorized vehicle use on 0.3-mile of way would not impact winter bald eagle use and roost sites because the way is not in the vicinity of roost sites.

Reintroduction of sharp-tail grouse (a Federal candidate species for listing under the Endangered Species Act) and bighorn sheep would add these species to the WSA’s special features.

The cabin would be evaluated for eligibility to the National Register of Historic Places. If the cabin qualifies and its continued use or maintenance is determined to be an adverse effect, measures to mitigate the effect will be developed (these measures may include discontinued use, stabilization, restoration, or data recording). If the cabin does not qualify, continued use as a recreation shelter would be allowed.

Conclusion: In the absence of wilderness designation, there are no projected activities that would impair wilderness values, however further declines from other potential uses are possible over the long term.

Impacts on Energy and Mineral Development

The entire 7,040 acre WSA would be open to all forms of mineral entry.

Energy Development

No exploration or development of energy resources is projected due to low potential for occurrence of energy resources within the WSA.

Conclusion: There would be no impact on energy development in the WSA.

Mineral Development

Only casual non-surface disturbing exploration (without development) for copper, gold and silver resources is projected due to a lack of direct evidence indicating favorability, no known mineral deposits or occurrences, no mining claims located within the WSA and a thick cap of basalt covering the older rocks over much of the WSA.

Conclusion: There would be no impact on mineral development.

Impacts on Vegetation

Little or no change would take place to vegetative composition or ecological status on most of the WSA because there are no projected management actions that would influence vegetation and grazing would continue at present levels. Utilization of key forage species would remain at 40 percent. The 0.3 mile of way would not revegetate due to continued use. Harvest of the old growth ponderosa pine and Douglas fir would continue to be precluded through ACEC restrictions.

Conclusion: The area’s vegetative composition and ecological status would not be affected.

Impacts on Wildlife

Because of the lack of roads currently within the WSA boundaries, mule deer and elk populations and habitat would continue to be only minimally disturbed by vehicles. Since the riparian zones are protected by steep slopes, these areas would continue to be only minimally impacted by livestock grazing and would remain in good condition.

Proposed transplants for bighorn sheep, sharp-tail grouse and turkey would occur. Initially, about 20 bighorn sheep would be introduced into the WSA, but the herd is expected to grow to approximately 125 animals. The sharp-tail grouse population is expected to reach approximately 300 birds and the wild turkey population is expected to reach approximately 150 birds.

Conclusion: Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep, sharp-tail grouse and turkey transplants would occur.

Impacts on Watershed

Since there are no projected actions that would influence Black Canyon Creek, stream condition and water quality would remain good in the area’s one perennial stream.

Conclusion: Watershed condition and water quality would remain good.

Impacts on Livestock Grazing

Livestock use would remain at the current level of 30 AUMs. Vehicle use for livestock management and inspection/maintenance would continue on 0.3 mile of way.
Conclusion: Livestock grazing use would continue at 30 AUMs in the WSA.

Impacts on Recreation Use

Motorized recreation use would continue on 0.3 mile of way, primarily involving vehicle access for vehicle-based hunting.

Completion of the hiking trail and transplants of bighorn sheep, sharp-tail grouse and wild turkey would contribute to increased recreational use of the WSA because they would improve opportunities for activities such as hunting, wildlife viewing and backpacking.

The overall recreation use level is projected to increase from the current level of approximately 500 visitor days per year to approximately 1,000 visitor days per year.

Conclusion: The area’s recreation use level of an estimated 500 visitor days per year would increase to approximately 1,000 visitor days per year.

Impacts on Local Personal Income

Livestock grazing would remain at 30 AUMs and overall recreation use would increase by 500 visitor days per year.

Table 5 shows the effects on local personal income generated from these activities. The total effect on local personal income would be a net increase of $6,000 per year.

Conclusion: Annual local personal income generated from resource outputs in the WSA would increase by approximately $6,000.

Unavoidable Adverse Impacts of the Proposed Action

Under the Proposed Action (Enhanced Wilderness), projected mineral exploration would be foregone. Vehicle use would be excluded, eliminating opportunities for those who prefer this type of recreation.

Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-Term Productivity

Under the Proposed Action, most existing short-term uses would continue, with some added, minor inconvenience and expense to livestock operators resulting from the exclusion of vehicles for day-to-day inspection activities. The long-term productivity of the wilderness values would be preserved.

Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, there would be no irreversible or irretrievable commitment of the wilderness resource or any other resource.

5. Wilderness Manageability and Rationale for the Proposed Action

Manageability of the Area as Wilderness

The area is capable of being managed to preserve its wilderness characteristics. Manageability would be enhanced if the private inholdings were acquired and the 0.3-mile way were closed. The acquisitions would prevent potential adverse effects from access to, and incompatible surface disturbing activities on, these parcels.

The 900-acre northern extension proposed in the DEIS to be excluded from wilderness designation due to its manageability problems has been reevaluated, resulting in its inclusion in the proposed action. McCarty Creek and associated drainages offer a diversity in terrain and vegetative screening, complementing wilderness designation. In addition, no vehicle access presently exists into the 900 acres as the topography is steep and rugged, facilitating management as wilderness.
Rationale for Selection of the Proposed Action

The enhanced wilderness alternative is the proposed action because the benefits of preserving the area’s wilderness values - including the undeveloped plateaus and canyons, the undisturbed riparian lands, large populations of wildlife, special interest plants, bald eagles, outstanding scenery, cultural sites and outstanding opportunities for solitude and primitive recreation - would outweigh the benefits of maintaining options for exploration for energy and mineral resources, and continued vehicle use on 0.3 mile of way.

Further analysis of the 900-acre northern extension, proposed in the DEIS to be excluded from wilderness designation, resulted in including it in the proposed action. McCarty Creek and associated drainages offer wilderness characteristics complementing the area’s designation as wilderness.

6. Summary and Analysis of Public Comments

Following is a summary of public comments specific to this WSA concerning adequacy of the analysis in this appendix and responses to those comments. These comments were received both in writing and as oral testimony at public hearings during the comment periods for the 1985 Draft EIS and 1987 Supplement to the Draft EIS. Comments concerning BLM’s wilderness recommendations or rationale were considered in developing the proposed action in this Final EIS and will be summarized in the Wilderness Study Report for this area. Comments concerning statewide issues and analyses are addressed in the Statewide volume.

Comment: The EIS in general needs clarification in that there is no Forest Service land or other WSAs near the Sheep Mountain WSA. Response: The Homestead WSA and adjacent Forest Service lands are just across the Pine Creek highway from the Sheep Mountain WSA. See Map 2.

Comment: The EIS is inadequate by reason that Idaho Power has a power line between dams to Hells Canyon. Response: The referenced powerline is not within the Wilderness Study Area. Powerlines within 2 miles of the WSA are mentioned in the section headed Wilderness Values: Naturalness.

Comment: The planned stock ponds will cause erosion. Response: There are no plans to develop stock ponds in this WSA. Refer to the section: Livestock Grazing.

Comment: BLM should acquire the inholdings and choose the All Wilderness alternative. Response: After public comment analysis and further evaluation, the proposed action is to acquire the inholdings and to recommend the Enhanced alternative.

Comment: Outside sights and sounds is not an appropriate criteria for analysis. Response: In the case of this particular WSA, outside sights and sounds are not significant enough to rate the area as nonsuitable for wilderness. Refer to the Statewide Volume for a description of the use of outside sights and sounds as evaluating criteria.
Table 1. Summary of Proposed Management Under Each Alternative, Sheep Mountain WSA (OR-6-3)

<table>
<thead>
<tr>
<th>Proposed Management</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Designated as Wilderness</td>
<td>7,040</td>
<td>7,040</td>
<td>0</td>
</tr>
<tr>
<td>Acres Closed to ORVs by Wilderness Designation(^1)</td>
<td>7,040</td>
<td>7,040</td>
<td>0</td>
</tr>
<tr>
<td>Miles of Ways Closed</td>
<td>0.3</td>
<td>0.3</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Full Fee Estate Acquired(^2)</td>
<td>0</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td>Acres Withdrawn from Mineral Location and Leasing by</td>
<td>7,040</td>
<td>7,040</td>
<td>0</td>
</tr>
<tr>
<td>Wilderness Designation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Except for 0.3 mile of way in the WSA, the acreage shown is already closed to cross-country vehicle use through a "limited" ORV designation.

\(^2\) Upon acquisition, these additional lands would be incorporated into the wilderness area, closed to vehicle use, and withdrawn from mineral location and leasing.
Table 2. Summary of Environmental Consequences of Alternatives, Sheep Mountain WSA (OR-6-3)

<table>
<thead>
<tr>
<th>Resource or Activity</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness (Proposed Action)</th>
<th>No Wilderness/No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilderness Values</td>
<td>Wilderness designation of the entire 7,040 acres within the Sheep Mountain WSA would result in the protection and enhancement of existing wilderness values.</td>
<td>Wilderness designation of 7,240 acres (assuming acquisition of the 200 acres of private property) would protect and enhance existing wilderness values.</td>
<td>In the absence of wilderness designation, there are no projected activities that would impair wilderness values, but further declines from other potential uses are possible over the long term.</td>
</tr>
<tr>
<td>Energy and Mineral Development</td>
<td>No impact to energy or mineral development is expected.</td>
<td>No impact to energy or mineral development is expected.</td>
<td>No impact on energy or mineral development in the WSA.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep and sharp-tailed grouse transplants would occur.</td>
<td>Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep and sharp-tailed grouse transplants would occur.</td>
<td>Wildlife populations and habitats would be maintained throughout the WSA. Bighorn sheep, sharp-tailed grouse and wild turkey transplants would occur.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>The 0.3 mile of way would revegetate. Little or no change would occur to vegetation on the rest of the area.</td>
<td>The 0.3 mile of way would revegetate. Little or no change would occur to vegetation on the rest of the area.</td>
<td>The area’s vegetative composition and ecological status would not be affected.</td>
</tr>
<tr>
<td>Watershed</td>
<td>Watershed condition and water quality would remain good.</td>
<td>Watershed condition and water quality would remain good.</td>
<td>Water quality and channel conditions of Black Canyon Creek would remain in good condition.</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>Livestock use would remain at 30 AUMs. The closure of 0.3 mile of way would cause minor inconvenience to livestock operators.</td>
<td>Livestock use would remain at 30 AUMs. Vehicle use on 0.3 mile of way would be precluded, causing minor inconvenience to livestock operators.</td>
<td>Livestock grazing use would continue at 30 AUMs in the WSA.</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>The area’s recreation use level of an estimated 500 visitor days per year would increase to approximately 1,000 visitor days per year.</td>
<td>The area’s recreation use level of 500 visitor days per year would increase to approximately 1,000 visitor days per year.</td>
<td>The area’s recreation use level of 500 visitor days per year would increase to approximately 1,000 visitor days per year.</td>
</tr>
<tr>
<td>Local Personal Income</td>
<td>Annual local personal income would increase by approximately $6,000.</td>
<td>Annual local personal income would increase by approximately $6,000.</td>
<td>Annual local personal income would increase by approximately $6,000.</td>
</tr>
</tbody>
</table>
### Table 3. Classification of Energy And Mineral Potential, Sheep Mountain WSA (OR-6-3)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Area</th>
<th>Level Of Potential</th>
<th>Level Of Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Gold &amp; Silver</td>
<td>Entire WSA</td>
<td>M</td>
<td>B</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Uranium/Thorium</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Coal</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Oil/Gas</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Tar Sands/Oil Shale</td>
<td>Entire WSA</td>
<td>L</td>
<td>C</td>
</tr>
<tr>
<td>Limestone</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Bentonite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Zeolites</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
<tr>
<td>Diatomite</td>
<td>Entire WSA</td>
<td>L</td>
<td>B</td>
</tr>
</tbody>
</table>

**Legend:**

- Level of Potential
  - 0 - No indication for accumulations of energy/mineral resource
  - L - Low potential for accumulations of energy/mineral resource
  - M - Moderate potential for accumulations of energy/mineral resource
  - H - High potential for accumulations of energy/mineral resource

- Level of Certainty
  - A - Insufficient data or no direct evidence
  - B - Indirect evidence available
  - C - Direct evidence but quantitatively minimal
  - D - Abundant direct and indirect evidence

### Table 4. Existing Livestock Use, Sheep Mountain WSA (OR-6-3)

<table>
<thead>
<tr>
<th>Grazing Allotment</th>
<th>Licensed in Allot.</th>
<th>Period of Use</th>
<th>Percent of Allot. in WSA</th>
<th>Current Actual Use in WSA (AUMs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine Valley (3001)</td>
<td>2,555</td>
<td>04/15-08/31</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>
Table 5. Effects of Alternatives on Local Personal Income, Sheep Mountain WSA (OR-6-3) (1981 price levels)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of Measure</th>
<th>All Wilderness</th>
<th>Enhanced Wilderness</th>
<th>No Wilderness/ No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGES IN RESOURCE OUTPUTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>AUMs</td>
<td>No Change</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>RVD</td>
<td>+500</td>
<td>+500</td>
<td>+500</td>
</tr>
<tr>
<td>PERSONAL INCOME FROM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJECTED OUTPUT CHANGES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>$</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recreation Use</td>
<td>$</td>
<td>+6,000</td>
<td>+6,000</td>
<td>+6,000</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>+6,000</td>
<td>+6,000</td>
<td>+6,000</td>
</tr>
</tbody>
</table>
LEGEND

- BLM Land in WSA Studied Under Section 603 of FLPMA
- Wilderness Study Area Boundary
- Boundary of Adjacent Wilderness Study Areas
- Bureau of Land Management
- State
- Private
- RARE II Area Designated for Further Planning

U.S. Department of the Interior
Bureau of Land Management
Vale District
Sheep Mountain WSA
OR-6-3

LAND OWNERSHIP

MAP 2
Recommended Suitable for Wilderness
Non-Federal Land within Recommended Wilderness
Sheep Mountain WSA, OR-6-3. North side of WSA looking south. Within area recommended suitable under the enhanced (proposed action) alternative. Highway 86 and the community of Copperfield (outside the WSA) are visible in the foreground. The ridge on the left is the northern extension of the WSA. October 1983.
MAP SYMBOLS

- Road
- Ways
- Buildings
- Fence
- Corral
- Pipeline
- Powerline
- Mine or Quarry
- Reservoir or Retention Dam
- Earth Tank or Charco
- Perennial Stream
- Intermittent Stream
- Intermittent Lake
- Dry Lake or Pond
- Marsh
- Lava
- Sand
- Spring
- Improved Spring
- Well
- Artesian Well
- Peak
- Rims

U.S. Bureau of Land Management
Oregon wilderness