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CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Chapter 4 presents the likely direct, indirect, and cumulative impacts on the human and natural environment in terms of environmental, social, and economic consequences that are projected to occur from implementing the alternatives presented in Chapter 2. Because the alternatives describe management direction/guidance[1] for resources and uses, the environmental consequences are most often expressed in comparative general terms. This chapter is organized by topic, such as Air Quality, Cultural Resources, and Wildland Fire Management, similar to Chapter 3, but Soil and Water management direction in this chapter is discussed in separate sections for the purpose of analysis. Each topic area includes a Methods of Analysis section that identifies Indicators and Methods and Assumptions, a summary of Impacts Common to all Alternatives, and an analysis of impacts by each of the four alternatives. In addition, impacts from the Reasonably Foreseeable Development Scenarios (RFDS) for Fluid Minerals leasing are provided. Only management programs with impacts are discussed. **Appendices P** and **Q** provide the RFDS for oil, gas, and geothermal resources, respectively. Separate sections describing the irretrievable or irreversible commitment of resources and unavoidable adverse impacts are presented at the end of the chapter.

Impact analyses and conclusions are based on interdisciplinary team (IDT) knowledge of the resources and the planning area, information provided by experts in the United States (US) Department of the Interior, Bureau of Land Management (BLM) or in other agencies, and information contained in pertinent, existing literature. The baseline used for the impact analysis is the current condition or situation, as described in Chapter 3, Affected Environment. Analysis assumptions have also been developed to help guide the determination of effects (see Analytical Assumptions). Because the draft Resource Management Plan (RMP) and Environmental Impact Statement (EIS) provides a broad management framework, the analysis in this chapter represents best estimates of impacts because exact locations of development or management are often unknown. Impacts are quantified to the extent practical with available data. In the absence of quantitative data, best professional judgment provides the basis for the impact analysis.

4.1.1 ANALYTICAL ASSUMPTIONS

Several assumptions were made to facilitate the analysis of the projected impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur within the Pocatello Field Office (PFO) during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for each alternative, as described in Chapter 2. The following general assumptions apply to all resource categories. Any specific resource assumptions are provided in the Methods of Analysis section for that resource.

- Sufficient funding and personnel would be available for implementing the final decision.

[1] The actions described for each resource and or use by alternative (i.e., Chapter 2) comprises the management direction/guidance for that particular resource or use.

- Implementing actions from any of the RMP alternatives would be in compliance with all valid existing rights, federal regulations, bureau policies, and other requirements.
- Specific actions to be implemented under the direction of the land use plan would be analyzed through the National Environmental Policy Act of 1969 (NEPA) process, except for the issuance of leases for Fluid Minerals such as oil, gas, and geothermal resources. The Pocatello RMP/EIS constitutes NEPA evaluation of leasing Fluid Minerals within the planning Area.
- Demand for Mineral Materials, such as sand and gravel and stone, is anticipated to slowly rise within the planning area. The number of permits issued from 2006 to 2025 is estimated to be 34 with disturbance occurring on approximately 333 acres, primarily within alluvial valleys and in eastern Bear Lake County. All but approximately 100 acres would not be reclaimed at the conclusion of this planning period.
- Locatable Minerals claims, exploration, and development within the planning area will likely increase. The number of 43 Code of Federal Regulations (CFR) 3809 notices/Plans of Operation (PO) issued from 2006 to 2025 is estimated to be 11. Disturbance would occur on approximately 105 acres and only 23 acres would not be reclaimed at the conclusion of the planning period.
- Oil, gas and geothermal exploration within the planning area will increase; and development may occur. The RFDS (2006-2025) would result in the issuance of 50-100 leases in Caribou and Bear Lake counties with subsequent disturbance on approximately 314 acres, which includes five wells and four miles of roads. All areas would be reclaimed at the conclusion of this planning period.
- Solid Leasable Minerals production within the planning area would continue within existing leases in Caribou County. Disturbance would occur on approximately 479 acres in the period from 2006 to 2025, and only 29 acres would be not be reclaimed at the conclusion of this period.
- Direct and indirect impacts of the RMP direction primarily occur on the public lands administered by the BLM (hereafter referred to as “public lands”).
- Local climate patterns of historic record and related conditions for plant growth would continue.
- Appropriate maintenance would be carried out to maintain the functional capability of all developments.
- The discussion of impacts is based on the best available data. Knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used to infer environmental impacts where data is limited.
- Acreage figures and other numbers used in the analyses are approximate projections for comparison and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations.
- Following the completion of the RMP, travel management plans would be developed that designates specific routes within the planning area as “Limited.”

4.1.2 TYPES OF EFFECTS (DIRECT, INDIRECT, AND CUMULATIVE)

Direct, indirect, and cumulative impacts are considered in the effects analysis, consistent with direction provided in 40 CFR 1502.16. Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place. Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur. Direct and indirect impacts are described in terms of duration (short term or long term), intensity (lesser, moderate, or greater), and context (local, regional, entire area). Cumulative effects are the direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR Part 1508.7). The list of actions used for cumulative impact analysis is provided below under Projects that Contribute to the Cumulative Impact Scenario.

Effects are quantified where possible, primarily by using Geographic Information System (GIS) applications. In the absence of quantitative data, best professional judgment is used; impacts are sometimes described using ranges of potential impacts or in qualitative terms.

Terms referring to impact duration are used in the effects analysis. The standard definitions for these terms are as follows:

Localized Impact: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.

Short-Term Effect: The effect occurs only while the alternative is being implemented.

Long-Term Effect: The effect could occur for an extended period after the alternative has been implemented. The effect could last several years or more and could be beneficial or adverse.

Definitions for impact terms describing intensity and context are provided at the beginning of resource sections, when appropriate.

4.1.3 PROJECTS THAT CONTRIBUTE TO THE CUMULATIVE IMPACT SCENARIO

Public scoping, internal scoping, and coordination with other agencies were used to develop a list of past, present, and reasonably foreseeable actions for consideration in cumulative impact analysis. Scoping for this project did not identify any need to exhaustively list individual past actions or analyze, compare, or describe the environmental effects of individual past actions. However, the Caribou National Forest Plan revision EIS did call for some specific actions. Given that much of the Caribou National Forest planning area is within the planning area, these actions are included in the cumulative assessment as applicable.

The timeline for looking at future actions is 20 years, which would encompass all long-term effects from management actions proposed in this plan, while providing a wide scope to capture likely projects that could be considered in the future. Actions include those initiated by private, state, and federal entities, along with any environmental trends or conditions that could have a cumulative impact. The geographic scope for analysis may vary by resource type or use, but unless otherwise discussed, the area for consideration is generally lands within the planning area.

The analysis is provided for each resource/program area and is general because decisions about other actions in the planning area would be made by many public and private entities, and the location, timing, and magnitude of these actions are not well known. Actions considered in the cumulative effects analysis include the following:

Past Actions

- Drought cycles, most notably in the 1930s, early 1990s, and 2000 have occurred.
- Wildland fires have occurred over time.
- Wildland fires have been suppressed over the past ninety years.
- Wildland fire occurrence, suppression, permitted human activities, and vegetation succession have shaped plant communities.
- Sagebrush steppe habitat has been fragmented from wildland fires and agricultural activity.
- Human activities (e.g., timber harvesting, livestock grazing, mining, agriculture, and off-highway vehicle [OHV] use) have contributed to streams with limited water quality.
- Fuels treatments, including prescribed fire, chemical and mechanical treatment, and seedings, have affected vegetation.
- Cyclic insect and disease activity have persisted in forested stands and rangelands and include those attributed to Mormon crickets and grasshoppers.
- Domestic cattle, sheep, and horses have grazed public lands and National Forest System lands administered by the Caribou National Forest.
- Range improvements for livestock and wildlife habitat improvement (e.g., water developments, and fences) have been developed and maintained on both public lands and National Forest System lands administered by the Caribou National Forest.
- Species have declined, resulting in their being listed under the Endangered Species Act of 1973 (ESA).
- Timber has been harvested on approximately 203,500 acres (120 million board feet [MMBF]) on both public lands and National Forest System lands administered by the Caribou National Forest (1990-2005).
- Past mining has occurred in localized areas. Phosphate mining has disturbed approximately 20,300 acres on both public lands and National Forest System lands administered by the Caribou National Forest.
- Hunting and fishing has occurred in the area.
- Recreation has increased, and use patterns and motorized technology have changed.
- Urban development has occurred adjacent to some public lands.
- Noxious weeds have invaded public lands, carried by wind, humans, machinery, and animals.
- Cultural resources inventories and archaeological site monitoring, protection, enhancement and research have occurred.
- Archaeological sites have been damaged, and illegal uses of archaeological sites have taken place.

- Both the Malad Management Framework Plan (1981a) and the Pocatello RMP (1988a) were completed.
- The Caribou National Forest completed its forest plan revision in 2004.
- Land tenure adjustments have occurred, affecting tribal members in exercising treaty rights.

Present Actions

- Drought cycles continue to influence vegetation communities.
- Wildland fires continue to occur at a similar rate to the past 30 years, burning approximately 3,700 acres annually.
- Wildland fires are managed using the Appropriate Management Response (AMR) concept.
- Wildland fire, fuels treatments, timber harvest, permitted human activities, and vegetation succession continue to shape plant communities. Amounts vary annually dependent on budget, staffing and weather.
- Sagebrush steppe habitat is fragmented from wildland fires, agricultural activity, and urban sprawl.
- The BLM is revising wildland fire management direction.
- Human activities (e.g., timber harvesting, livestock grazing, mining, agriculture, and OHV use) contribute to poor water quality in streams on public lands and National Forest System lands administered by the Caribou National Forest.
- Cyclic insect and disease activity and outbreaks continue in forested stands and rangelands and include those attributed to Mormon crickets and grasshoppers.
- Cattle, sheep, and horses are grazing, with approximately 359,000 animal unit months (AUMs) being permitted by the BLM and US Department of Agriculture, National Forest Service (Forest Service).
- Range improvements (e.g., water developments, fences) for livestock and wildlife habitat improvement are developed and maintained on both public lands and National Forest System lands administered by the Caribou National Forest.
- Species are listed under the ESA.
- Populations of some fish and wildlife species are declining in the West, while others, such as elk and white-tailed deer, are increasing.
- About 900 acres of timber are harvested annually on both public lands and National Forest System lands administered by the Caribou National Forest.
- Mining is occurring on portions of both National Forest System lands administered by the Caribou National Forest and on public lands, with phosphate mining accounting for most of the activity.
- Road construction, to some degree and in association with timber harvesting and phosphate mining, continues on both National Forest System lands administered by the Caribou National Forest and on public lands.
- Hunting and fishing continues.

- Recreational opportunities, including OHV use, snowmobile use, hunting, camping, and wildlife viewing, are available, and use would continue to increase as the population grows.
- Recreational activities contribute to soils impacts.
- The use of developed recreation sites and campgrounds continues.
- OHV use is increasing due to changes in population and technological advances.
- Noxious weed invasion is increasing and contributes to soil impacts.
- Short-term and long-term soils productivity loss continues in localized areas.
- Shifts in management emphasis and the implementation of Best Management Practices (BMPs) and *Idaho Standards for Rangeland Health and Guidelines for Livestock Management* (BLM 1997a) have reduced soil impacts from livestock grazing, mining, road construction, and timber harvesting.
- Private lands in the Conservation Reserve Program and those located adjacent to public lands contribute to wildlife habitat, particularly to Columbian sharp-tailed grouse habitat.
- Consultation with the Shoshone-Bannock Tribes is continuing to ensure that land management decisions and activities do not affect treaty rights.
- The Snake River adjudication is ongoing and could restrict future diversions or affect in-stream flow needs.
- Water developments and water diversions are in place.
- Urban development continues adjacent to some public lands, particularly around Pocatello, Malad, Inkom, McCammon, Soda Springs, Montpelier, and Preston. Thus, the Wildland Urban Interface (WUI) is expanding and increasing risks to public safety due to wildland fire.
- Access is being restricted to public lands by some private landowners.
- Land exchanges are occurring to consolidate public lands and to facilitate management.
- The PFO continues to authorize cultural resources inventories and archaeological site monitoring, protection, enhancement and research.
- Damage to archaeological sites and illegal uses of archaeological sites continue.
- The Wasatch-Cache National Forest is completing its forest plan revision.
- Land tenure adjustments continue to occur, affecting tribal members in exercising treaty rights.

Reasonably Foreseeable Actions

- Drought cycles and climate change would continue to influence vegetation communities.
- Wildland fires would continue to be managed using the AMR concept. It is foreseeable, given any alternative, that more wildland fires would receive a limited response than at present to protect public/firefighter safety, and improve and protect resource values.
- Wildland fires would continue to occur at a similar rate to the past 30 years, but could burn more acres annually depending on AMR applied and climate change.

- Wildland fire, Wildland Fire Use (WFU), fuels treatments, timber harvest, permitted human activities, and vegetation succession would continue to shape plant communities. Amounts would continue to vary annually, but are expected to increase, dependent on budget, staffing and weather.
- Sagebrush steppe habitat would continue to be fragmented from wildland fires, agricultural activity, and urban sprawl.
- Human-related activities (e.g., timber harvesting, grazing, mining, agriculture, and OHV use) would continue to contribute to limit the water quality of streams identified on National Forest System lands administered by the Caribou National Forest and on public lands.
- BLM will continue to revise wildland fire management direction.
- Cyclic insect and disease activity and outbreaks would continue in forested stands and rangelands, including those attributed to Mormon crickets and grasshoppers.
- Livestock grazing would continue.
- Range improvements (e.g., water developments, fences) for livestock and wildlife habitat improvement would continue to be developed and maintained on both public lands and National Forest System lands administered by the Caribou National Forest.
- Additional species may be listed under the ESA if populations of particular species continue to decline. The bald eagle and grizzly bear have recently been delisted.
- Declining wildlife and fish species could receive increased federal and state agency conservation efforts.
- Phosphate mining would continue.
- Road construction, to some degree and in association with timber harvesting and phosphate mining, would continue on both National Forest System lands administered by the Caribou National Forest and on public lands.
- Hunting and fishing would continue.
- Recreational opportunities, including OHV use, snowmobile use, hunting, camping, and wildlife viewing, would continue to increase as population grows.
- Recreational activities would continue to contribute to soil impacts.
- Demand for recreational activities would continue to increase, and use patterns would change with changes in population and technology.
- An increase in the use of developed recreation sites and campgrounds is likely as population increases.
- OHV use is likely to continue to increase due to population increases and technological advances.
- Noxious weed invasion would continue to impact ecosystem functions and treatment efforts may increase.
- Short- and long-term soil productivity loss would continue in some areas.
- Private lands in the Conservation Reserve Program and those adjacent to public lands would continue to contribute to wildlife habitat, particularly to Columbian sharp-tailed grouse habitat.

- Consultation with the Shoshone-Bannock Tribes would continue to ensure that land management decisions and activities would not affect treaty rights.
- Rural communities along the Idaho/Utah state line would continue to grow as the population along the Wasatch front expands northward.
- Counties within the planning area would begin to address increased growth in county development plans and other planning and zoning efforts.
- State of Idaho Department of Environmental Quality (IDEQ) would establish total maximum daily loads (TMDLs) for all 303(d) streams with limited water quality within the next 5-10 years.
- The US Environmental Protection Agency (EPA) is likely to set particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$) standards under the Clean Air Act.
- Urban development would continue adjacent to public lands, particularly near Pocatello, Malad, Inkom, McCammon, Soda Springs, Montpelier, and Preston, contributing to increasing fire risk in the WUI.
- Private landowners are likely to increase access restrictions to public lands.
- Land exchanges of various sizes would occur in order to consolidate public lands and to facilitate management.
- Authorized cultural resources inventories and archaeological site monitoring, protection, enhancement, and research would continue.
- Archaeological sites would continue to be damaged, and illegal uses of archaeological sites would continue to occur.
- Land tenure adjustments would occur, affecting tribal members in exercising treaty rights.
- Energy projects such as the Gateway West transmission line and Sunstone natural gas pipeline crossing portions of BLM-administered public lands in the PFO planning area will likely continue to be entertained.

4.1.4 INCOMPLETE OR UNAVAILABLE INFORMATION

The Council on Environmental Quality established implementation regulations for NEPA, requiring that a federal agency identify relevant information that may be incomplete or unavailable for an evaluation of reasonably foreseeable significant adverse effects in an EIS (40 CFR 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included or addressed in an EIS. Knowledge and information is, and would always be, incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information pertinent to the decisions to be made was used in developing the RMP. Considerable effort has been taken to acquire and convert resource data into digital format for use in the plan—both from BLM and outside sources.

Certain information was unavailable for use in developing this plan because inventories have either not been conducted or are not complete. Some of the major types of data unavailable are as follows:

- ***Cultural Resources:*** Most of the planning area has not been inventoried for cultural resources. Archaeological survey coverage is less than 6% of the planning area; and information on other cultural resources types, such as historic structures, cultural landscapes, and traditional cultural properties, is very limited. There is a potential for cultural resources in most of the planning area. Evaluation of the significance of the resource base or the importance of resources to Native American groups has been limited, and cultural resources have not been allocated to use categories. Sufficient data is not available to quantify impacts on cultural resources. Before any undertaking, the BLM would complete an inventory to identify resources, to determine eligibility, and to assess the effects of its actions on cultural resources.
- ***Paleontological Resources:*** Only portions of the planning area have been formally inventoried for paleontological resources, and no inventories have been conducted of the Malad portion of the planning area. There are known fossil-bearing geologic formations and exposures, and there is potential for paleontological resources occurrence in other parts of the planning area. However, there are no scientifically important vertebrate fossils known to exist on BLM-managed public land at the present time.

This RMP is based on the concept of adaptive management; so it has been built to be dynamic enough to account for changes in resource conditions (e.g., large-scale wildland fire), new information and science, and changes in regulation and policies. No incomplete or unavailable information was deemed essential to a reasoned choice among the alternatives analyzed in this EIS.

4.2 RESOURCES

4.2.1 AIR QUALITY

4.2.1.1 Summary

The primary air pollutants would come from wildland fire, minerals and energy development, and from vehicles using roads and trails. Locations within the planning area and a 62-mile (100-kilometer) radius of consideration that have been identified as sensitive to air quality include the Fort Hall PM_{10} Non-Attainment Area (NAA), the Portneuf Valley maintenance area (redesignated as attainment for PM_{10}), impact zones (Pocatello and Idaho Falls), Class I visibility areas (Craters of the Moon National Monument and Preserve Wilderness Area, Grand Teton National Park, the Teton Wilderness Area, and the Bridger Wilderness Area), and numerous hospitals, airports, major transportation corridors and population centers (Tetra Tech-TMI 2004).

Potential impacts from fire management activities, both long and short term, would be reduced through action-specific analysis and permitting and coordination efforts with the Montana/Idaho Airshed Group (MIAG) to ensure compliance with all local, state, and federal regulations. With these laws and protection measures in place, fire management activities would not unlawfully exceed air quality standards or affect NAAs or other sensitive areas within the area of consideration. However, circumstances beyond the BLM's control (such as uncontrollable wildland fire) may affect air quality, but these acts of nature are outside the scope and control of resource management planning.

A summary of particulate matter (PM) emission estimates from wildland fire management and mining activities for each alternative, as discussed below, are presented in **Table 4.2.1-1.**

Table 4.2.1-1. Comparison of Air Quality Indicators by Alternative

Indicator	Alternative			
	A	B	C	D
Tons/10-year of PM_{10} from Fire[1]	968	9,953	12,603	13,546
Tons/10-year of $PM_{2.5}$ from Fire[1]	821	8,417	10,680	11,451
Tons/10-year of PM_{10} from Leasable Minerals Mining	30,555	30,555	30,555	30,555
Tons/10-year of $PM_{2.5}$ from Leasable Minerals Mining	6,110	6,110	6,110	6,110
Tons/10-year of PM_{10} from Mineral Materials Mining	10	10	10	10
Tons/10-year of $PM_{2.5}$ from Mineral Materials Mining	2	2	2	2
Tons/10-year of PM_{10} from Fluid Mineral Development	1	1	1	1
Tons/10-year of $PM_{2.5}$ from Fluid Mineral Development	0.15	0.15	0.15	0.15

[1]Includes emissions for prescribed fire, WFU, and burning of slash piles from forestry operations.

4.2.1.2 Methods of Analysis

Indicators. The magnitude and extent of air quality effects resulting from the actions proposed in the four alternatives are too complex to comprehensively quantify, due to the wide variability of potential activities and the time or duration of occurrence. Idaho's dominant air pollutant is PM from sources such as open burning, industrial emissions, agricultural activities, fugitive road dust, and residential wood burning (BLM 2004i). The majority of emissions are in the form of PM. The major pollutant of concern in smoke from fire is fine PM, both $PM_{2.5}$ and PM_{10} (Sandberg et al. 2002). The major pollutant from surface mining and quarrying activities is fugitive dust generated from haul trucks and other mining equipment, including fine particulates (EPA 2005). Quantitative estimates of PM emissions from fire management and Solid Leasable Minerals and Mineral Materials mining were calculated for each alternative. Other management activities with the potential to affect air quality are discussed qualitatively by alternative.

Particulate emissions from wildland fire management actions, such as WFU and prescribed fire, were calculated using emission factors developed using the First Order Fire Effect Model (FOFEM), Version 5 (Forest Service 2005). Emission factors for PM_{10} and $PM_{2.5}$ were calculated for the vegetation types identified for treatment in the various alternatives. The emission factors were then multiplied by the proposed WFU and prescribed fire treatment acreages specified in the various alternatives to calculate PM emissions totals over ten years throughout the planning area. Fire emissions also include anticipated impacts from the burning of slash piles from forestry operations.

Particulate emissions for current mining activities were developed from emission factors calculated for mining and quarrying for the 1999 National Emissions Inventory (NEI). The current mining rate (tons of product per year from phosphate mining and sand and gravel

quarrying), as described in Chapter 3, was multiplied by the 1999 NEI emission factor to calculate PM emissions estimates over ten years (based on current activity).

Other ongoing activities in the planning area that have the potential to substantially affect air quality include industrial pollutants and, to a lesser degree, management of OHV use, temporary road construction, and heavy equipment use for forestry-related activities. These activities could directly affect air quality in the short term by generating fugitive dust. These activities would not likely result in long-term impacts on air quality because the BLM would implement additional management practices to reduce the effects of fugitive dust (**Appendix C**). Implementing dust suppression strategies, including established BMPs, to mitigate fugitive dust would reduce the impacts on air quality. Due to the widely varied specific conditions, timing, and scale of these activities, reliable quantitative estimates of particulate emissions from these activities have not been determined. Impacts on air quality in the various alternatives are discussed qualitatively below.

Methods and Assumptions. These methods of analysis are based on the following assumptions:

- Emissions estimates from fire management activities using FOFEM assume an interior-west regional location, typical (default) model adjustments for the region, dry conditions, even loading distribution across the entire burn area, and fall season treatments.
- To capture the full potential impact, the analysis assumes that all acres proposed for vegetation treatments would have prescribe fire. Such a scenario is highly unlikely as other methods (e.g., mechanical, chemical, and seeding) would also be used.
- An average of 150 acres of Dry Conifer per year was used to estimate PM emissions from slash pile burning resulting from commercial logging activities that would occur on between 120 to 180 acres per year.
- Assumes that 2% of acres designated as suitable for WFU would burn, in addition to any areas that receive a prescribe burn treatment.
- PM emissions from surface mining and quarry activities were estimated based on the nonmetallic mining emission factor developed for the 1999 NEI (0.2933 pounds PM_{10} per ton of crude ore mining) (EPA 2004). The $PM_{2.5}$ emissions are calculated as a particle size adjustment factor of 0.2 of the PM_{10} emissions rate (EPA 2004). The emissions totals do not account for efficiency of dust suppression or other mitigation methods.
- Current crude ore volumes of mined nonmetallic (phosphate) material were estimated based on an average grade of 24% phosphorus pentoxide and the estimated total volumes of phosphate produced from mines in the planning area, as described in Chapter 3.
- Current particulate emissions estimates from quarrying were calculated based on tons of sand and gravel currently quarried from public lands in the planning area (approximately 7,000 tons, as described in Chapter 3).
- For determination of the weight of Mineral Materials mined in the planning area, a weight of 1.6 tons per cubic yard of native sand and gravel was expected.

In all alternatives, Air Quality direction would not be affected by management direction for Air Quality, Cultural Resources, Soils, Paleontological Resources, Fish and Wildlife, Special Status Species, Visual Resources, Water Resources, and Special Designations; so these resources and resource uses are not further addressed under this section.

4.2.1.3 Impacts Common to All Alternatives

The IDEQ and the EPA would regulate air emissions in all alternatives. The planning area is located primarily in Idaho Airshed Unit 20, with smaller portions located in Airshed units 18, 19, and 25 (Trinity Consultants 2003). As discussed in Chapter 3, 50% of the observed wind directions in the planning area originate from the south to west quadrant (primarily in the spring and summer). However, significant seasonal variation does occur, and planners in the vicinity of sensitive receptors, such as population centers, would consider seasonal wind direction and mixing heights when planning management direction activities such as those in wildland fire management (BLM 2004i).

The planning area encompasses a region with various elevations, marked by stream valleys of north-south orientation that channel into the Snake River. When evaluating the impacts of management direction, such as from Wildland Fire Management and Minerals and Energy, the stream valleys may carry emissions (smoke or dust) toward sensitive receptors, such as Pocatello, Fort Hall PM_{10} NAA, Idaho Falls, or Grand Teton National Park, when winds blow from the south.

Impacts from Vegetation Direction: Vegetation treatments would have direct short-term effects on air quality where prescribed fire (see below) and nonfire methods, including chemical and mechanical treatments, are used. WFU as a vegetation treatment method is also discussed below. The direct effects of vegetation treatments on air quality from nonfire methods would include fugitive dust resulting from light- and heavy-duty vehicles traveling over unpaved roads. Pollutants from the combustion of fossil fuel from mobile equipment and vehicles would result in an immeasurable amount of criteria pollutants, such as nitrogen oxides (NO_x), sulphur dioxide (SO_2), carbon dioxide (CO_2), and Volatile Organic Compounds (VOCs) that would be emitted during treatment operations. The air emissions would occur only during active operations and would be completely dispersed or deposited with hours to days. A large percentage of the fugitive particulate emissions generated from vegetation treatment activities would settle out quickly near their point of generation. The intensity of the air emission impacts would be minor and concentrated at the site-specific perspective

Impacts from Wildland Fire Management Direction: One of the management objectives for Air Quality, as stated in Chapter 2, includes the reduction of particulate impacts from uncontrolled wildland fires. The primary method of reducing particulate impacts (and other impacts) from wildland fires has been suppression. Fire suppression would remain a central strategy for all alternatives to reduce impacts from wildland fires; however, WFU, AMR mechanical fuels treatments, and prescribed fire treatments could also be used to varying degrees across all the alternatives. The planned nature of these treatments would allow the BLM to schedule and locate them for optimal control of emissions.

Impacts from Forestry Direction: Commercial logging and related forestry activities are ongoing in the planning area and would remain at current levels for all alternatives. Slash pile

burning following logging creates particulate emissions. PM emissions from slash pile burning were calculated using FOFEM, based on the current logging activity described in Chapter 2 and the assumptions described above. Approximately 120 to 180 acres of forested vegetation types are anticipated to be harvested for commercial lumber over the next ten years. In all alternatives, an average of approximately 41 tons of PM_{10} and approximately 35 tons of $PM_{2.5}$ are anticipated to be produced from slash pile burning over ten years. These estimates have been added to the total estimated emissions due to fire management calculated for each alternative below.

Impacts from Lands and Realty Direction: Lands and Realty management actions would have direct short-term impacts on air quality. Various impacts on air quality would occur depending on the current or intended future use of the lands. Direct short-term impacts would be caused by surface-disturbing activities resulting from land use authorizations (LUAs) such as rights-of-way (ROW) construction for energy transmission lines or pipelines. Surface-disturbing activities would temporarily remove soil and forage during land clearing and grading. Clearing and grading activities issued under LUAs would be expected to result in emissions that would include fugitive dust PM, carbon monoxide (CO), NO_x, SO_2, and VOCs. A large percentage of the fugitive particulate emissions generated by LUA construction activities would settle out quickly near their point of generation, often within hours to days. The intensity of the air emission impacts would be minor and concentrated at the site-specific perspective. Fugitive dust would be controlled during land clearing and grading activities by watering or by using chemical dust suppressants including water sprays or chemicals. Reclamation following the completion of construction would further reduce the potential for long-term impacts on air quality by replacing removed topsoil and subsoil and by revegetating areas to stabilize the ground surface.

Impacts from Livestock Grazing Direction: Livestock grazing management activities may result in impacts on air quality through the generation of fugitive dust. These impacts are anticipated to remain at current levels and to be the same for all alternatives.

Impacts from Minerals and Energy Direction: Minerals and energy development involves extracting minerals from the earth using various methods, which depend on the type of material being extracted. Air emissions would be produced during all phases of minerals and energy development, including exploration, road construction, production, abandonment and road closures, and reclamation. During exploration and development, traffic from heavy- and light-vehicle use on unpaved and paved roads would cause emissions of PM, CO, NO_x, SO_2, and VOCs from combustion processes and construction activities. Emissions from geothermal exploration could also include hydrogen sulfide (H_2S). However, levels of minerals and energy activities would be the same in all alternatives (see **Table 4.2.1-1** and Section 4.3.4, Minerals and Energy).

Fugitive dust would be controlled during construction, operations, and maintenance activities by watering or using chemical dust suppressants and posting vehicle speed limits in accordance with applicable Idaho regulations. Water sprays or chemicals would reduce fugitive dust emissions on roads by as much as 90%. Gravel on high-use roads would reduce fugitive dust emissions by reducing the silt content of the surface material.

Minerals and energy resources which would be most likely to directly affect air quality include Solid Leasable Minerals (surface mining such as phosphate) and Mineral Materials (stone mining and quarrying). Such activities can result in particulate (fugitive dust) emissions.

During minerals and energy activities, PM emissions would be produced from overburden removal, blasting, truck loading, bulldozing, grading, storage piles, and travel of heavy equipment over unpaved roads. Pollutants from the combustion of fossil fuel from mobile equipment, vehicles, and generators would result in a measurable amount of criteria pollutants, such as NO_x, SO_2, CO, and VOCs that would be emitted primarily during operations. The air emissions would occur only during active operations and would be completely dispersed or deposited at the conclusion of operations. A large percentage of the fugitive particulate emissions generated from minerals and energy and transportation activities would settle out quickly near their point of generation. The intensity of the air emission impacts would be concentrated at the site-specific perspective. Current particulate emissions resulting from phosphate mining in the planning area are estimated to average 30,555 tons of PM_{10} and 6,110 tons of $PM_{2.5}$ over ten years. Sand and gravel quarrying on public lands are estimated to produce approximately 10 tons of PM_{10} and two tons of $PM_{2.5}$ emissions over ten years (**Table 4.2.1-1**). Particulate emissions in Alternatives B, C, and D would not be appreciably different from current conditions. This is because public lands proposed to be left open would continue to receive the same level of development because few mineral deposits in the planning area exist in the amount and grade that allow for profitable extraction.

Impacts on air quality from fugitive dust would, therefore, be generally short term, with dust settling within hours to days. However, ongoing minerals and energy operations may result in longer-term, ongoing fugitive dust impacts on air quality. Indirect impacts of minerals and energy activities (particularly phosphate mining) include emissions, such as SO_2, from mineral processing. Emissions from these facilities are strictly regulated and permitted by the state.

Impacts from the Reasonably Foreseeable Development Scenarios of Fluid Minerals Direction: Exploration activities for oil and gas are anticipated to include drilling five exploration wells at five locations within the Bear Lake area (**Figure 3-16**). Roads approximately 4 miles in length would be constructed to access each of these sites. Total disturbance would be about 125 acres. Exploration activities for geothermal resources would likely consist of five wells at different locations accessed by roads approximately 4 miles in length for a total disturbance footprint of about 87 acres. Particulate emissions for new road construction and site clearance from exploration activities would be a primary air quality concern; however, emissions would localized and short term. As discussed below, construction of roads and full development would result in emissions for PM_{10} and $PM_{2.5}$ well below 1 ton per year. Exploration wells for geothermal resources would vent some H_2S. Given the limited expected exploration of geothermal resources, the impacts would be short term, localized, and not result in noticeable accumulation in the atmosphere.

Extraction of Fluid Minerals resources generally requires preparing the site, drilling, installing well equipment, and storing and transporting the resources offsite via truck. Air emissions during Fluid Minerals production would include emissions of NO_x and CO from compression activities (burning of natural gas), and H_2S from geothermal venting. PM, CO, NO_x, SO_2, and VOC emissions would be produced from any glycol operations and flashing. Approximately 60 acres would be impacted by oil and gas development and production activities at a five-well field, most likely within the Medium or High potential areas shown in **Figure 3-16**. Particulate emissions from new road construction and use as well as equipment (compressor) operations would be the primary air quality concerns associated with oil and gas well development in the

planning area. Recent assessments of PM emissions from oil and gas well development outside the planning area have estimated approximately 0.02 ton of PM_{10} and 0.003 ton of $PM_{2.5}$ are produced by a single well per year (primarily associated with road use and construction) (BLM 2005c). Based on this average, the estimated total PM emissions from oil and gas development (RFD of five wells) would be approximately 0.1 ton of PM_{10} and 0.015 ton of $PM_{2.5}$ over ten years. Impacts from these emissions could be long term and localized.

In the RFDS, it is anticipated that a small geothermal field would be developed, consisting of five production wells, two injection wells, pipelines, power lines, and a binary power plant. The total disturbance would be about 42 acres at a site located anywhere within the field office. Particulate emissions from geothermal development would be none to negligible (Kagel et al. 2005). Operational emissions could include venting of small amounts of H_2S from the wells, slight heating of the local atmosphere, and diesel emissions from on-site vehicles and maintenance equipment. A binary power plant (comprised of completely closed-loop systems) would have no emissions. All Fluid Minerals development would require conformance with IDEQ air quality regulations and permitting requirements.

Impacts from Recreation Direction: The use of recreational vehicles and OHVs can adversely affect air quality on the BLM airsheds through pollutants related to emissions. Vehicles would cause fugitive dust emissions of PM from traffic on unpaved trails, and emissions of PM, CO, NO_x, SO_2, and VOCs directly from tailpipes. In winter, tailpipe emissions primarily occur from snowmobiles. PM emissions from travel on paved and unpaved roads and gaseous tailpipe emissions would occur. Upward trends in populations in the planning area could create the potential for more frequent short-term, localized emissions, and the intensity and duration would depend on the level of increased recreational traffic and weather conditions.

4.2.1.4 Alternative A

Impacts from Wildland Fire Management Direction: Currently, WFU is not a management tool used in the planning area. Approximately 3,400 acres of the Aspen/Aspen Conifer Mix/Dry Conifer types would be treated with prescribed fire within the next ten years. In Alternative A, approximately 968 tons of PM_{10} and approximately 821 tons of $PM_{2.5}$ would result from fire treatments and forestry slash pile burning.

The direct impacts of fire on air quality are generally short term, with smoke dissipating within hours to days. The long-term impact of full fire suppression and minimal prescribed fire may result in a continuing trend toward more severe and uncontrollable wildland fires. These fires have the potential to create more smoke emissions than smaller controlled fires and cannot be timed to minimize impacts on existing air quality conditions. Increased pollutant concentrations and impacts on the NAA and other sensitive areas could increase as a result of these fires. Impacts on human health could also increase, particularly from exposure to PM. Some events could require special precautions to be taken to protect the health of sensitive members of the public. Alternative A's minimal use of WFU and prescribed fire could keep direct impacts from these actions to a minimum but allow for larger wildland fires and accompanying smoke emissions. In the long term, it could result in a trend away from the natural frequency and scale of wildland fire in the planning area.

The use of mechanical treatments could cause short-term increases in exhaust and fugitive dust from the use of mechanical equipment. Future planned mechanical treatments would be analyzed through the NEPA process to ensure compliance with air quality standards and to reduce impacts on sensitive areas.

Impacts from Lands and Realty Direction: In Alternative A, lands available for sale or exchange could result in various impacts on air quality, depending on the current or intended future use of the lands. However, the amount of land available for sale or exchange in this alternative would be 14% more than Alternative B, 29% more than Alternative C, but 47% less than in Alternative D.

Impacts on air quality from potential LUA development would be less in Alternative A than in the other alternatives because about 5% of the area would be available. Alternative A would designate 8% less area as LUA avoidance areas compared to Alternatives B and C, and 15% less compared to Alternative D. LUA exclusion areas would be 16-times greater than in Alternatives B and C. Alternative D would not exclude any areas from potential LUA development.

Impacts from Recreation Direction: Impacts on air quality would increase in Alternative A due to the continued designation of approximately 61,300 acres of public lands as open to unrestricted OHV use and 352,000 as undesignated; only approximately 1,300 acres would be designated as closed to OHV use.

4.2.1.5 Alternative B

Impacts from Wildland Fire Management Direction: Alternative B identifies prescribed fire as an available management tool in the planning area. Up to 124,250 acres of the Low- and Mid-Elevation Shrub (including juniper encroachment), Mountain Shrub, Perennial Grass, Dry Conifer, and Aspen/Aspen Conifer Mix vegetation types could be specified for treatment over ten years using fire. In Alternative B, approximately 9,063 tons of PM_{10} and 7,663 tons of $PM_{2.5}$ would be produced by prescribed fire. In addition, WFU may be used generating about 848 tons of PM_{10} and 718 tons of $PM_{2.5.}$ The short-term impacts of smoke in Alternative B would be greater than to those in Alternative A. In the long term, there would be a trend toward a more natural wildland fire occurrence on public lands.

Impacts from Lands and Realty Direction: Increased acreages of lands would be available for sale or exchange in this alternative, which could result in various impacts on air quality, depending on current or intended future use. The amount of land available for sale or exchange in this alternative would be 13% less than in Alternative A and 13% more than in Alternative C, but 54% less than in Alternative D.

The potential for impacts on air quality from LUA development could be 5% greater in Alternative B than in Alternative A and the same as in Alternatives C and D. Alternative B would designate 8% more area as LUA avoidance areas than in Alternative A, the same as in Alternative C, and 8% less than in Alternative D. LUA exclusion areas would be 93% less than in Alternative A and the same as in Alternative C. Alternative D would not exclude any areas from potential LUA development.

Impacts from Recreation Direction: Impacts on air quality due to OHV use may decrease due to the designation of all public lands as limited (approximately 601,100 acres) or closed

(approximately 12,700 acres) for OHV use (compared to approximately 61,300 open acres and 352,000 undesignated acres in the Alternative A).

4.2.1.6 Alternative C

Impacts from Wildland Fire Management Direction: Alternative C identifies prescribed fire use as an available management tool in the planning area. Up to 54,920 acres of Mid-Elevation Shrub (including juniper encroachment), Mountain Shrub, Perennial Grass, Dry Conifer, Aspen/Aspen Conifer Mix, Wet/Cold Conifer, Riparian, and other vegetation types could be specified for treatment using fire. In Alternative C, approximately 11,881 tons of PM_{10} and 10,068 tons of $PM_{2.5}$ would be produced by prescribed fire. In addition, WFU may be used generating about 681 tons of PM_{10} and 576 tons of $PM_{2.5.}$ Compared to Alternative B, Alternative C designates about 69,000 acres less for fire use; however, the emissions are greater. The primary reason is that Alternative C proposes more fire use in areas that contain a high fuel load, such as in the Dry Conifer and Aspen/Aspen Conifer Mix communities. Overall, the short-term impacts of smoke in Alternative C would be similar to the other action alternatives.

Similar to Alternative B, increased acreage of fuel treatments in Alternative C would trend vegetation types toward a lower Fire Regime Condition Class (FRCC). Alternative C would decrease the potential for wildland fires and create a trend toward a more natural wildland fire occurrence. This would enable associated emissions to be managed more effectively. The use of prescribed fire and WFU would continue to impact air quality in the long term, creating a trend toward a more natural wildland fire occurrence.

Impacts from Lands and Realty Direction: In Alternative C, increased acreages (compared to current levels) of lands available for sale or exchange could result in various impacts on air quality, depending on current or intended future use. The amount of land available for sale or exchange in this alternative would be 22% less than in Alternative A, 11% more than in Alternative B, and 59% less than in Alternative D.

The potential for impacts on air quality from LUA development would be the same as in Alternative B.

Impacts from Recreation Direction: Impacts on air quality would be the same as in Alternative B because OHV use may decrease due to the designation of all public lands as limited or closed to OHV use and to the stated management objective to provide moderate-to-high control of OHV use.

4.2.1.7 Alternative D

Impacts from Wildland Fire Management Direction: Alternative D identifies prescribed fire as an available management tool in the planning area. Up to 162,170 acres Low- and Mid-Elevation Shrub (including juniper encroachment), Mountain Shrub, Perennial Grass, Dry Conifer, Aspen/Aspen Conifer Mix, Wet/Cold Conifer, Riparian, and other vegetation types could be specified for treatment using fire. In Alternative D, approximately 12,004 tons of PM_{10} and 10,145 tons of $PM_{2.5}$ would be produced by prescribed fire. In addition, WFU may be used generating about 1,501 tons of PM_{10} and 1,271 tons of $PM_{2.5.}$ The short-term impacts of smoke in Alternative D would be similar to those in the other action alternatives.

Increased acreage of fuel treatments in Alternative D would trend vegetative conditions in the long term toward a lower FRCC. Alternative D would create a trend toward a more natural wildland fire occurrence on public lands, which could enable the BLM to manage wildland fire and associated emissions more effectively.

The substantially increased use of planned fire treatments (both prescribed fire and WFU) could affect air quality in the long term, creating a trend toward a more natural wildland fire occurrence.

Impacts from Lands and Realty Direction: In Alternative D, substantially increased acreages (compared to all other alternatives) of lands available for sale or exchange in this alternative could result in various impacts on air quality, depending on the current or intended future use of the lands. The amount of land available for sale or exchange in this alternative would be 89% more than in Alternative A, 116% more than in Alternative B, and 143% more than in Alternative D.

The potential for impacts on air quality from LUA development would generally be the same as those described for Alternatives B and C. Alternative D would designate 18% more area as LUA avoidance areas compared to Alternative A and 9% more area than Alternatives B and C. However, Alternative D would not exclude any areas from potential LUA development.

Impacts from Recreation Direction: Impacts on air quality would be the same as Alternatives B and C because OHV use may decrease compared to current levels due to the designation of all public lands as limited or closed to OHV use. However, the stated management objective to promote development of OHV trails, to increase route densities, and to provide minimal control of OHV use would more likely result in increases in PM emissions.

4.2.1.8 Cumulative Impacts

Cumulative impacts include past, present, and foreseeable future management actions that may affect air quality associated with the planning area. The cumulative impacts discussion that follows considers the proposed alternatives in the context of the broader human environment, outside the scope described by the RMP. For the purpose of this impact analysis, the gross land area within the planning area, including BLM, Forest Service, Bureau of Indian Affairs (BIA), State of Idaho, and private lands are considered.

Past and Current Actions: Past and present effects on air quality on public lands include smoke from prescribed fire, wildland fires, dust from agricultural practices (including livestock grazing on public and private lands, and dry land farming on private lands), minerals and energy development, and recreation travel on unpaved roads. The planning area is currently classified for National Ambient Air Quality Standards (NAAQS) and is considered a Class II area. Prescribed fire, wildland fire, mining and energy development, and agricultural practices adjacent to the public lands are expected to continue for the foreseeable future. Production of PM_{10} and $PM_{2.5}$ and CO created from vegetation and fire treatments in each alternative are not expected to exceed NAAQS when complying with the MIAG Smoke Management Plan. Because smoke disperses more rapidly in most cases, impacts from smoke produced by prescribed fires on air quality are short term. Production of PM created from agricultural practices, minerals and energy development, and recreation travel by recreational vehicles and

OHVs conducted on public lands would also not be expected to exceed NAAQS when complying with IDEQ, the state agency responsible for monitoring and inventorying criteria air pollutants.

As noted above, the BLM coordinates wildland fire management activities with the MIAG. A primary mission of the airshed management group is to coordinate such activities among participating entities (such as the BLM, Forest Service, and IDEQ) to ensure that simultaneously occurring actions do not cumulatively violate standards for, or significantly degrade, air quality, including visibility. In all alternatives, the BLM's continued participation and coordination with this group would mitigate cumulative impacts on air quality due to wildland fire management actions.

An important indirect cumulative effect due to increased phosphate mining would be the potential for increased emissions, particularly SO_2, for mineral processing. This potential impact of increased mineral processing emissions cannot be accurately estimated due the large number of unknown variables (such as ore volume processed and process equipment) that may affect emission rates. However, the IDEQ closely monitors and reviews emissions from mineral processing facilities with air quality monitoring stations and through their permitting process. Coordination with IDEQ and project-specific NEPA analysis of impacts on air quality from mineral processing activities proposed in the future would be conducted.

Future Actions: Potential cumulative impacts on air quality would occur from a combination of activities and land uses occurring within the planning area. Such impacts would result primarily from wildland fire management's use of prescribed fire, WFU, and wildland fire management, recreation, and disruptive human activities. These activities would result in either disturbance or the direct removal of soil and vegetation. Reclamation efforts and vegetation treatments would reduce impacts on air quality, though roads, mines, and the presence of humans would result in continued short-term, localized impacts.

Of the land and realty actions, land tenure adjustments resulting in public land leaving federal ownership would potentially impact air quality on public lands. Future uses of disposed lands are unknown and unpredictable, and impacts would depend on ownership and use of the land. However, it is likely, that lands leaving federal ownership would be used similarly under private ownership and would not affect air quality overall.

Existing and future recreation activities would have far-reaching, direct impacts on air quality due to the increasing demands of expanding populations. Although, site-specific "Intensive Use Open Areas" as large as 80 acres in Alternative B and 320 acres in Alternative D could result in direct, though short-term, impacts. Travel management plans would impact air quality throughout the planning area by restricting open OHV travel, especially in Alternatives B and C.

Existing and future minerals and energy development projects, Fluid Minerals development and recreation use areas within the planning area would also exacerbate cumulative effects, on a site-specific basis. However, acres involved with minerals and energy and Fluid Minerals activity would be less than 2% of the planning area and of little consequence to air quality by themselves. Reclamation efforts associated with mineral activities would impact air quality in the long term. Minerals and energy development and related construction of roads, pipelines, and well pads would be the primary cause of fugitive dust and other PM emissions. Impacts on air quality

would be more severe in the eastern portion of the planning area, where development is more likely. Implementing the BLM's mitigation guidelines, restrictions on surface use, vegetation treatments, and monitoring efforts would protect air quality on federal lands and lands with federal subsurface minerals, which would help reduce overall effects on air quality.

Vegetation treatments could affect air quality. Thus, there is the potential for increased cumulative impacts in the short term from the actions proposed, when considered in conjunction with other management activities in the area. Overall, cumulative impacts may vary, depending on which project alternative is implemented and the cumulative impacts of other plans that would be in effect. However, fewer acres treated in the long term would be detrimental to air quality as hazardous fuels increase making more acres prone to wildland fire in the planning area.

Cumulative impacts on air quality due to Wildland Fire Management's use of prescribed fire and wildland fire, Minerals and Energy's phosphate mining and quarrying, Recreation, Livestock Grazing, Forestry and Lands and Realty's LUA development would be mitigated through continued coordination with affected parties and cooperating agencies to ensure that the management actions for each of these activities do not contribute to any future nonattainment. In the future, pressure from population growth in the planning area and the presumed accompanying increases in impacts from increased development could present the greatest challenge to air quality management. It also would necessitate vigilant assessment of direct and indirect impacts on air quality from planned actions to avoid cumulative impacts on air quality-related values such as visibility.

4.2.1.9 Tribal Treaty Rights and Interests

This includes treaty rights, tribal sovereignty, freedom of religion, protection of sacred and archaeological sites, and contemporary political and socials rights, including economic viability. However, it is unlikely that such interests would affect the air quality management objectives described in each of the alternatives since the BLM consults with tribes on projects affecting tribal treaty rights and interests on public lands. The BLM would continue to solicit input from tribes on future projects, which would reduce, if not eliminate, effects on air quality management. The BLM would also continue to only conduct actions that would be consistent with meeting the objectives set forth in the Federal Implementation Plan for the Fort Hall PM_{10} Nonattainment Area (EPA 2000).

The tribes would be able to exercise their treaty rights and interests on unoccupied public lands and those public lands within the ceded reservation boundary in conformance with air quality regulations.

4.2.1.10 Climate Change

The assessment of greenhouse gas emissions is in its formative phase, so it is not yet possible to know with confidence their net impact on climate change. However, the Intergovernmental Panel on Climate Change (IPCC 2007a) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations."

The lack of scientific tools to predict climate change on a regional or local scale limits the ability to quantify potential future impacts. Currently the BLM does not have an established mechanism to accurately predict the effect of resource management-level decisions from this planning effort on climate change. However, potential impacts on air quality from climate change are likely to be varied. For example, if climate change results in a warmer and drier climate, increased particulate matter impacts could occur from increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move northward and to higher elevations, and extinction of endemic threatened and endangered plants and animals may be accelerated.

Due to the loss of habitat or to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Less snow at lower elevations would be likely to impact the timing and quantity of snowmelt, which, in turn, could impact stream flows and temperatures, aquatic species and associated ecosystems. In the future, as tools for predicting climate changes improve or changes in climate affect resources and necessitate changes in how resources are managed, the BLM may be able to reevaluate decisions made as part of this planning process and to adjust management accordingly.

4.2.2 CULTURAL RESOURCES

4.2.2.1 Summary

Only a small portion of the lands administered by the BLM have been surveyed for cultural resources, but there is potential for cultural resources throughout the planning area. The number and significance of cultural resources cannot be estimated; and, therefore, impacts resulting from proposed management actions couldn't be quantified.

Proposed management actions that cause ground disturbance can cause natural processes such as erosion, expose cultural resources to intense fire, open or close land to potentially incompatible uses, disrupt the setting of cultural resources, affect access to cultural resources, and remove or add land subject to federal protections for cultural resources could increase the risk of impacts on cultural resources. Management actions can further be divided into those that would be anticipated and reasonably foreseeable and those that would identify acreage available or suitable for a particular use.

The types and potential for impacts that could result from management direction are similar, but vary by the amount of acreage affected by actions that could impact cultural resources. Affected acreage does not indicate an impact would necessarily occur. For authorized and planned actions, cultural resources would be identified, impacts would be assessed, and any adverse effects would be addressed at the implementation level through site-specific NEPA review and compliance with cultural resource review requirements.

Unauthorized activities, wildland fire, dispersed recreation, and natural processes could lead to impacts that may be more difficult to monitor and mitigate. Management actions would include stipulations designed to proactively avoid, or to reduce, impacts from all sources; but impacts on cultural resources could occur.

The following table compares the affected acreage of current and proposed management actions and alternatives. The referenced impact indicators for cultural resources are summarized in **Table 4.2.2-1**, and described in greater detail in Section 4.2.2.2.

Table 4.2.2-1. Comparison of Cultural Resources Indicators by Alternative in Approximate Acres

Indicator	Alternative			
	A	**B**	**C**	**D**
Presence or potential for resources to be present—There is a potential for unidentified resources to be present throughout the planning area.	No change	No change	No change	No change
Extent of change—Acres of proposed land disposal. If significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the adverse effect of the loss of federal protections for the resource.	No Change 32,200	Decrease 28,150	Decrease 24,950	Increase 60,700
Extent of change—Acres considered for land tenure adjustments. If significant resources are involved, impacts include potential loss of federal cultural resource protections, potential acquisition of resources, and enhanced management of current resources.	No change 32,200	Increase 197,300	Increase 144,100	Increase 544,600
Extent of change, ground–disturbing activity—Acres withdrawn from Locatable Minerals development that could provide direct or indirect protection to cultural resources from this activity by restricting incompatible uses.	No change 67,060	Increase 84,760	Increase 84,760	No change 67,060
Extent of change/ground-disturbing activities— Level of LUA development.	No change	Net increase	Net increase	Net increase
Avoidance Acres	20,200	21,900	21,900	23,800
Exclusion Acres	30,700	1,900	1,900	0.0
Ground-disturbing activities/erosion/alteration to setting—Anticipated acres of disturbance related to minerals and energy development.	No change 1,231	No change 1,231	No change 1,231	No change 1,231
Ground-disturbing activities/alteration to setting—Footprint acres, all vegetation treatments.	No change 3,400	Increase 124,250	Increase 54,920	Increase 162,170

Table 4.2.2-1. Comparison of Cultural Resources Indicators by Alternative in Approximate Acres *(continued)*

Indicator	Alternative			
	A	**B**	**C**	**D**
Ground-disturbing activities/erosion/alteration to setting—Acres of WFU allowed as a vegetation treatment.	No change 0.0	Increase 265,000	Increase 212,600	Increase 468,900
Ground-disturbing activities/erosion/access/alteration to setting—Acres open or undesignated (essentially open) for OHV use.	No change 413,500	Decrease 0.0	Decrease 0.0	Decrease 0.0
Ground-disturbing activities/erosion/access/alteration to setting—Acres designated as closed to OHV use.	No change 1,300	Increase 12,700	Increase 12,700	Increase 12,700
Ground-disturbing activities/erosion/access/alteration to setting—Acres where OHV use is limited to existing routes or designated.	No change 199,000	Increase 601,100	Increase 601,100	Increase 601,100

Current management in Alternative A would result in the least risk of impacts on cultural resources from land tenure adjustments, and vegetation treatments. Risks to cultural resources from open or undesignated OHV use would be the greatest in Alternative A as would the long-term risk to cultural resources from catastrophic wildland fire resulting from limited vegetation treatment.

The risk of impacts on cultural resources would be reduced in Alternatives B, C, and D by limiting almost all OHV use to designated routes. Alternatives B and C would also increase the acres withdrawn and acres closed to Locatable Minerals. Alternative C would dispose of the least amount of federal land and would add no surface occupancy (NSO) or closure provisions for minerals and energy development to the greatest area of land. These actions would provide indirect protection to cultural resources from surface-disturbing, or other incompatible, activities.

Alternative D would dispose of the most acres of public lands, treat the most area of vegetation, allow WFU on the most acreage, and close the smallest area of land to Locatable Minerals, Mineral Material disposal, and nonenergy leasing. For these actions, Alternative D would result in the greatest risk to cultural resources because it anticipates the most surface disturbance and provides the fewest constraints on potentially incompatible activities. Alternative D would consider the most acreage for land tenure adjustments, which could result in the loss of federal protections for cultural resources or the acquisition of cultural resources and enhanced management of currently held resources.

4.2.2.2 Methods of Analysis

Indicators. Management actions could impact National Register of Historic Places (NRHP) - eligible cultural resources or areas of importance to Native American or other traditional

communities through direct disturbance, increased access, unauthorized activities, natural processes, dispersed activities, and incremental or inadvertent human actions.

Indicators that are used to qualitatively assess change to cultural resources include the following:

- The known presence or potential for intact cultural resources and the extent of change associated with the management alternatives and their potential to modify the risk of impacts on cultural resources.
- The acres and relative depth of ground-disturbing activities anticipated and their potential for affecting known or unknown intact cultural resources or areas of importance to Native American or other traditional communities.
- Increased access or activity in areas where intact cultural resources or areas of importance to Native American or other traditional communities are present or anticipated.
- Extent that the management action changes the potential for erosion or other natural processes, which could affect cultural resources.
- Extent that the management action alters the setting of cultural resources.

Methods and Assumptions. Impacts on cultural resources are assessed by applying the criteria of adverse effect, as defined in 36 CFR 800.5a: "An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative."

The criteria of adverse effect provide a general framework for identifying and determining the context and intensity of potential impacts on other categories of cultural resources as well, if these are present. Assessment of effects involving Native American or other traditional community, cultural, or religious practices or resources also requires focused consultation with the affected group.

Given the large size of the planning area, the general nature of planning-level decisions, the lack of inventory coverage, and the lack of resource evaluation, complete information on the resource base of the affected areas is not available. Impact discussion is based on the relative likelihood of resources to be present, the types and significance of resources that might be present, and the potential for impacts associated with each of the alternatives.

The impact analysis focuses on the extent of change associated with the alternatives and their potential to modify the risk of impacts on cultural resources. The following assumptions regarding the resource base and Cultural Resources management practices were considered in the analysis:

- Most of the planning area has not been inventoried for cultural resources, and there is no predictive modeling or sensitivity mapping available to estimate or quantify resource density. There is potential for cultural resources on most of the planning area, but the presence and significance of resources and impacts cannot be quantified.

- There is qualitative information that indicates areas where there is a higher probability that cultural resources would be present, relative to the whole planning area. These include river corridors, spring locations, historic trails, hunting and plant gathering areas. Highly disturbed or recently developed areas would be less likely to include intact cultural resources.
- It is expected that the number of acres affected and the intensity of the proposed activity are correlated to the potential number of cultural resource sites that may be affected and the potential severity of the impacts.
- Measures that withdraw land or restrict surface development to protect resources can provide direct and indirect protection of cultural resources from disturbance and from incompatible and unauthorized activities.
- Before it authorizes any site-specific project, the BLM requires consultation, site-specific inventory, and evaluation to be completed and mitigation measures to be identified to reduce effects as necessary. Overall impacts could be reduced with mitigation measures, including avoidance.
- Natural processes, such as erosion or weathering, will degrade the integrity of many types of cultural resources over time. Human visitation, recreation, OHV use, livestock grazing, fire and nonfire vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated actions or visits over time could intensify impacts.
- Vandalism or unauthorized collecting can destroy cultural resources in a single incident. Exposure or access to areas where cultural resources are present can increase the risk of vandalism or unauthorized collection of cultural resources.
- Site monitoring, non-project-related inventories, site stabilization and other proactive management activities would continue.

In all alternatives, Cultural Resources direction would not be affected by Air Quality so this resource is not further addressed under this section.

4.2.2.3 Impacts Common to All Alternatives

Impacts from Cultural Resources Direction: There would be no change in Cultural Resources management direction in any of the alternatives. Ongoing and planned management measures include consulting federally recognized tribes, protecting identified cultural resources areas, managing and organizing cultural resources records, nominating resources to the NRHP, and preparing planning and overview documents. The allocation of cultural resources to use categories (scientific, conservation, traditional, interpretation, experimental and discharged) and development of management actions in support of these designated uses would continue.

Impacts would be reduced or avoided by compliance with laws and executive orders designed to preserve and protect cultural resources. These include Federal Land Policy and Management Act of 1976 (FLPMA) Sections 103(c), 201(a), 202(c), the National Historic Preservation Act (NHPA) Sections 106 and 110(a), the Archaeological Resources Protection Act (ARPA) Section 14(a), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and Executive Orders 13175 and 13007. Complying with management measures for authorized actions requires consultation with federally

recognized tribes and other interested members of the public, identification and evaluation of cultural resources, and adherence to procedures for resolving any adverse effects and mitigating impacts.

Avoidance and preservation in place is preferred to other mitigation alternatives. Mitigation of adverse effects on archaeological resources can include data recovery excavations, which can expand understanding of human use and behavior. Mitigation, however appropriate, can preclude preservation or other future desirable management options. There is a greater risk of impacts resulting from unauthorized activities, natural processes, dispersed activities, and incremental or inadvertent human actions, especially where inventories are incomplete.

Impacts from Soils Direction: Measures to limit soils erosion and ground-disturbing activities would enhance the preservation of archaeological resources in the long term.

Impacts from Paleontological Resources Direction: Long-term indirect effects on cultural resources would result from the awareness and enforcement of paleontological identification and protection measures.

Impacts from Vegetation Direction: In all of the alternatives, there would be long-term effects associated with enhancing vegetation to improve land health conditions (LHC) by eroding archaeological sites. There could be short-term impacts due to loss of access during treatment or closures for cultural uses. There could be long-term impacts due to ground disturbance associated with treatments, the effects of chemicals, and introduction of seeds and other plant materials, which may affect the accuracy of paleobotanical data on archaeological sites. Impacts of vegetation treatments are discussed in Impacts from Wildland Fire Management Direction below.

Impacts from Fish and Wildlife Direction: There would be long-term effects associated with management that assures the continued presence of plant and animal species, including those that may be culturally significant. There may be short-term effects from loss of access for cultural use during treatment or closures.

Impacts from Special Status Species Direction: Measures that reduce incompatible uses to preserve special status species habitats would also have indirect effects on cultural resources by reducing the potential for ground-disturbing actions, erosion, alterations to setting, and vandalism. Short-term impacts could result if seasonal closures inhibit tribal access to traditional use areas or sacred sites.

Impacts from Visual Resources Direction: There would be no change in Visual Resources management, and there would be similar potential for impacts on cultural resources across all of the alternatives. Visual Resource Management (VRM) Class I and II designations would provide indirect protection for cultural resources where visual setting contributes to the significance of the property or the traditional use. Designations would also limit ground-disturbing activities in those areas. Visual intrusion on the setting of cultural resources must be considered in the Section 106 process and tribal consultation, regardless of VRM designation.

Impacts from Water Resources Direction: Techniques or practices used to stabilize soils, protect watersheds and streams, and control soil erosion may include risks of direct disturbance

of cultural resources through ground-disturbing activities. Effects would be addressed during project planning and the Section 106 process.

Impacts from Wildland Fire Management Direction: In all of the alternatives there would be long- and short-term impacts on cultural resources. Treatments could potentially impact cultural resources; but, in the long term, they could decrease the risk of impacts on cultural resources from catastrophic wildland fire and subsequent erosion.

Wildland fire and fire treatments can disturb cultural resources through the destruction or modification of structures, features, and artifacts. Organic materials and the information that can be obtained from their study are especially vulnerable to heat damage. Wildland fire management and suppression activities can involve ground-disturbing activities that can also directly affect cultural resources, especially by altering the spatial relationships of archaeological sites.

Wildland fire and fire treatments can result in impacts through erosion and the increased visibility of cultural resources. Such occurrences can remove vegetation and expose previously undiscovered resources, allowing their study and protection; however, sites exposed by any type of fire or flagged for fire avoidance prior to prescribed fire treatments can be susceptible to vandalism and unauthorized collection.

Nonfire vegetation treatments can affect cultural resources through direct disturbance, the effects of chemicals, and the introduction of seeds and pollens that may affect the accuracy of paleobotanical data on archaeological sites. There could also be short-term impacts due to the loss of access for cultural uses during treatment or closures.

Detailed stipulations for wildland fire management address a range of cultural resource concerns associated with WFU, fire suppression, prescribed fire, nonfire treatments, and restoration activities. The identification and protection of all resources, however, is not possible. Thus, some effects cannot be avoided.

Impacts from Forestry Direction: Impacts due to ground disturbance and erosion are associated with forestry in all of the alternatives. All alternatives include provisions for the exercise of traditional tribal reserved treaty rights to the use of forest and vegetal products. Effects on cultural resources would be considered in the Section 106 process.

Impacts from Lands and Realty Direction: Land considered for withdrawals, new LUAs, land tenure adjustments or disposal may include identified or unidentified cultural resources. Lands and realty actions would be subject to further cultural resource identification, evaluation, effects analysis, and resolution of any adverse effects that meet the criteria for eligibility to the NRHP or are important to Native American or other traditional communities.

Similar levels of ROW and other LUAs are anticipated in all of the alternatives. The potential for impacts would be similar and would be subject to site-specific review.

All of the alternatives would seek to maintain the public land base, but vary in the amount of acres considered for disposal and land tenure adjustments. The priorities for determining land retention or acquisition include consideration of tribal traditional uses and values, National Historic Trails (NHTs), and the presence significant cultural resources and NRHP- eligible sites.

However, the locations of cultural resources and areas important for tribal or traditional uses have not been inventoried for most of the planning area.

The presence or significance of resources in lands subject to disposal or land tenure adjustment may not be known until further identification and evaluation is conducted. In cases where significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the effect of the loss of federal protections for the resource. The acquisition of new land would provide long-term federal protection to any cultural resources included in the transaction and could enhance currently managed resources by consolidating holdings. If land tenure adjustments increase public access to cultural resources, there could be increased risk of vandalism or unauthorized collection.

Impacts from Livestock Grazing Direction: Livestock grazing, watering locations, corrals, water haul roads, pipelines, and fences can have effects on cultural resources through direct disturbance and erosion. Implementing *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) could reduce the potential for impacts on archaeological sites from erosion and trampling.

Impacts from Minerals and Energy Direction: Similar levels of minerals and energy development and surface disturbance (approximately 1,231 acres from all anticipated solid and Fluid Mineral development over the next 20 years) would be anticipated in all the alternatives. An unknown portion of this total may contain valuable cultural resources. The alternatives vary in the amount of land that would be open, closed, administratively unavailable, or subject to surface restrictions for different types of minerals and energy development.

Potential impacts of minerals and energy development on cultural resources include direct ground-disturbing activities, erosion, intrusions and destruction to setting, thereby removing sites from the landscape, and increasing access, which would lead to vandalism and unauthorized collection. Examples of resources that may be impacted include archaeological sites, historic structures, trails, and traditional use areas. Surface restrictions and withdrawals from minerals and energy development could protect resources present at particular locations from potentially incompatible uses.

Minerals and energy development would include guidelines and standard stipulations during implementation to identify and protect cultural resources. Further consideration of potential impacts would be addressed in a site-specific analysis of development proposals. Cultural resources would be identified and evaluated. Effects would be determined, and the BLM would seek to resolve any adverse effects on NRHP-eligible cultural resources or those resources important to Native American or other traditional communities. Impacts may or may not be mitigated to the satisfaction of all parties.

Impacts from the RFDS of Fluid Minerals Direction: Potential impacts on cultural resources and requirements to assess and avoid impacts would be similar to those described for minerals and energy. The projected level of activity for oil and gas and geothermal leasing or Fluid Mineral exploration and development operations would be very small relative to the lands open in all of the alternatives. A total of approximately 314 acres in the planning area would be impacted by operations conducted under Fluid Minerals leases. An unknown portion of this total may contain valuable cultural resources.

If standard cultural resource protective procedures and practices are followed, oil and gas and geothermal development's direct cultural resource impacts would be minimal. Although mineral leases would be issued, no surface disturbing activities would be allowed without completion of required cultural resource inventories. Mitigation would then be developed as appropriate in concert with the Idaho State Historic Preservation Office. Mitigation may include avoiding sites, data recovery, stabilization, or other appropriate mitigation before any exploration or production facilities could be constructed.

Field development that is projected in the RFDS in **Appendix P** would have a greater potential for disturbance of cultural resources. Again, implementing standard inventory, site avoidance and other procedures would negate direct impacts. There would be an increase in the potential for inadvertent discovery, damage and destruction of subsurface cultural resources. Subsurface site detection methodology has improved; but sites obscured by dense vegetation, or deeply buried sites, may be difficult to detect by standard surficial pedestrian methods. These sites may be overlooked and destroyed. Larger sites could be inventoried and assessed, while smaller sites might be more easily overlooked and possibly damaged or otherwise destroyed.

Indirect impacts could result from oil and gas and geothermal development. Development would open areas with limited or no vehicular access to increased recreational visitation and use. This could expose previously isolated cultural resources to damage, looting, defacement and other illegal uses.

Impacts from Recreation Direction: Dispersed recreation and OHV use can affect cultural resources through direct disturbance, soil compaction, altered surface water drainage, erosion, intrusions to setting, and access leading to vandalism and unauthorized collecting. The potential for impacts would increase as population and recreational use increases. Route designation for OHV use provides some protection for cultural resources that are located off the travel routes. The enforcement of travel routes, however, is difficult; and unauthorized, user-created trails would continue to occur. Impacts on resources, if present, could be short term for alterations to setting or long term for direct disturbance.

Impacts from Special Designations Direction: Special designations and area-specific management plans, as they relate to the preservation of cultural resources, provide long-term protection of cultural resources by restricting incompatible uses. Special designations that would restrict surface disturbance or other disruptive activities would indirectly provide protection to any cultural resources present. Designations that encourage recreation can increase human use and direct disturbance of cultural resources.

4.2.2.4 Alternative A

Impacts from Vegetation Direction: In Alternative A, vegetation management would emphasize rehabilitative and restorative treatments following the suppression of wildland fire to reduce the frequency and size of future wildland fire events and to improve the distribution of LHC classes to favor LHC-A. Impacts on cultural resources could occur as described in Section 4.2.3.3. Treatments could potentially impact cultural resources; but, in the long term, they could decrease the risk of impacts on cultural resources from catastrophic wildland fire and the loss of vegetative cover.

In Alternative A, post-fire vegetation treatments would be limited to approximately 3,400 acres and only in the Aspen/Aspen Conifer Mix/Dry Conifer vegetation types where culturally significant resources or areas could occur. The potential for vegetation treatments to impact cultural resources would be higher where they occur on a broader scale in Alternatives B (on approximately 124,450 acres), in Alternative C (on approximately 54,920 acres), or in Alternative D (on approximately 162,170 acres).

Impacts from Wildland Fire Management Direction: Wildland fire management would emphasize suppression and reduction of the frequency and size of wildland fire. Fuel treatments would be limited to approximately 3,400 acres in the next 10 years. The level of treatment proposed ranges from 2.1-6.19% of the amount proposed in the other alternatives. Impacts on cultural resources could occur, as described in Section 4.2.2.3. Treatments could potentially impact cultural resources; but, in the long term, they could decrease the risk of impacts on cultural resources from catastrophic wildland fire and subsequent erosion.

The emphasis on suppression and control of the size of wildland fire could result in inadvertent disturbance of cultural resources during the creation of firebreaks, roads, and staging areas. Treatments to reduce the frequency of wildland fire would occur on less acreage than the other alternatives, but would be associated with potential direct ground disturbance to cultural resources, damage from heat and the corrosive effects of chemicals, and the introduction of seeds and pollens, which may affect the accuracy of paleobotanical data on archaeological sites. During treatment there could also be short-term impacts due to the loss of access for cultural uses.

Inventory and avoidance requirements and stipulations for wildland fire management would help avoid many of the impacts. Some resources, however, would not be identified, especially during fire suppression; and long-term impacts could result.

Impacts from Lands and Realty Direction: The types and range of impacts possible to cultural resources by lands and realty actions were identified in Section 4.2.2.3. Similar levels of ROW and other LUAs would be anticipated in all of the alternatives. The potential for impacts would be similar and would be subject to site-specific review. LUA development in Alternative A would continue under standard stipulations for all but approximately 42,300 acres.

In Alternative A, withdrawal from Locatable Minerals activity would total approximately 67,060 acres, which is less than in Alternatives B and C (approximately 84,760 acres) and the same as in Alternative D. Withdrawals from Locatable Minerals activity could provide direct or indirect protection from potential impacts from this activity. A withdrawn area, however, would still be subject to other land uses that could impact cultural resources.

The BLM would consider approximately 32,200 acres for disposal. The presence or significance of resources in lands subject to disposal may not be known until further identification and evaluation is conducted. In cases where significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the adverse effect of the loss of federal protections for the resource. Exchange may result in the acquisition of other culturally significant land that would be afforded long-term federal protections. The consolidation of lands with cultural resources could assist in management and protection.

Impacts from Recreation Direction: The types and range of possible impacts on cultural resources from recreation are identified in Section 4.2.2.3. Alternative A would continue open OHV use on approximately 61,300 acres, closed on approximately 1,300 acres, and limited on approximately 199,000 acres. A total of approximately 352,200 acres would be left as undesignated but essentially open to OHV use.

In the absence of a management plan, continued recreation emphasis in the Blackfoot River Special Recreation Management Area (SRMA) and the Pocatello SRMA may increase the potential for uses that could be incompatible with resource preservation. Dispersed recreation and OHV use can affect cultural resources through direct disturbance, soil compaction, altered surface water drainage, erosion, intrusions to setting, and access leading to vandalism and unauthorized collecting. Impacts on resources, if present, could be short term for alterations to setting or long term for direct disturbance.

4.2.2.5 Alternative B

Impacts from Vegetation Direction: In Alternative B, vegetation management would continue to emphasize rehabilitative and restorative treatments following the suppression of wildland fire to reduce the frequency and size of future wildland fire events, similar to Alternative A, but over a broader scale of vegetation types (124,250 acres). Impacts on cultural resources could occur as described in Section 4.2.3.3.

Treatments could potentially impact cultural resources; but, in the long term, they could decrease the risk of impacts on cultural resources from catastrophic wildland fire and the loss of vegetative cover.

Additional actions proposed in Alternative B would set direction for actively managing and treating vegetation. There would be long-term indirect effects associated with enhancing vegetation and LHC by improving vegetative cover and reducing the erosion of archaeological sites. There could be short-term impacts due to the loss of access during treatment or closures for cultural uses and long-term impacts due to ground disturbance associated with treatments, the effects of chemicals, and introduction of seeds, plant materials, and pollens, which may affect the accuracy of paleobotanical data on archaeological sites. The potential for vegetation treatments to impact cultural resources would be higher where they occur on a broader scale in Alternatives C (on approximately 124,450 acres) or in Alternative D (on approximately 162,170 acres).

Inventory and avoidance requirements and stipulations for vegetation management would help to avoid many of the impacts. Some resources, however, would not be identified, especially during treatment; and long-term impacts could result. In the long term, treatments could decrease the risk of impacts on cultural resources from catastrophic wildland fire and improved ecological health.

Impacts from Special Status Species Direction: Additional actions proposed in Alternative B to maintain, recover, and improve special status species habitats could also have indirect long-term effects on cultural resources. These actions would include avoidance or restrictions on access, vehicle use, fuel treatments, noise, and incompatible project activities. Cultural resources would be affected by reductions in potentially ground-disturbing actions such as erosion,

alterations to setting, and vandalism. Short-term impacts could result if seasonal closures inhibit tribal access to traditional use areas or sacred sites.

Impacts from Wildland Fire Management Direction: Effects on cultural resources resulting from wildland fire management would be similar to those described in Section 4.2.2.3. In Alternative B, the emphasis on restoring a more natural fire regime would result in the potential for fewer impacts from wildland fire suppression but more impacts from the direct effects of fire and active wildland fire management and treatment projects. WFU would be allowed on up to approximately 265,000 acres, which would be considerably more than in Alternatives A (0 acres) and C (approximately 212,600 acres) but less than in Alternative D (approximately 468,900 acres). Treatment of approximately 124,250 footprint acres would be anticipated, which would be considerably more than in Alternative A (approximately 3,400 acres) and Alternative C (approximately 54,920 acres) but less than in Alternative D (approximately 162,170 acres).

Inventory and avoidance requirements and stipulations for wildland fire management would help to avoid many of the impacts. Some resources, however, would not be identified, especially during wildland fire suppression; and impacts could result. In the long term, treatments could decrease the risk of impacts on cultural resources from catastrophic wildland fire and subsequent exposure and erosion.

Impacts from Lands and Realty Direction: The types and range of possible impacts on cultural resources from lands and realty actions are identified in Section 4.2.2.3. Similar levels of ROW and other LUAs are anticipated in all of the alternatives. The potential for impacts would be similar and would be subject to site-specific review. LUA development in Alternative A would continue under standard stipulations for all but 42,300 acres.

In Alternatives B, C, and D, the BLM would define lands as Open, Avoidance, Exclusion and Restricted for the development of LUA. While the level of ROW and other LUAs are expected to be similar for all alternatives, this direction may help future planning and avoid actions in conflict with cultural resource values.

In Alternatives B, C, and D the BLM would adjust and consolidate public land ownership patterns in Zones 1, 2, and 3 consistent with resource values and efficient administration. Actions to consolidate and better manage resources would have a long-term effect on improving the management of cultural resources. Alternative B would additionally propose withdrawals from Locatable Minerals development of the Petticoat Peak Area of Critical Environmental Concern (ACEC) and Research Natural Area (RNA) (approximately 400 acres) and the Soda Springs Hills Management area (approximately 15,000 acres), for a total of approximately 84,760 acres.

Withdrawals from Locatable Minerals development could provide direct or indirect protection from the potential for impacts from this activity to any cultural resources present. A withdrawn area, however, would still be subject to other land uses that could impact cultural resources.

In Alternative B, approximately 28,150 acres would be considered for disposal, which would be less than in Alternatives A (approximately 32,200 acres) and D (approximately 67,060 acres) but more than in Alternative C (approximately 24,950 acres). Land tenure adjustments would be considered on approximately 197,300 acres, which would be an increase of approximately 165,000 acres over Alternative A.

The presence or significance of resources in lands subject to disposal or land tenure adjustment may not be known until further identification and evaluation is conducted. In cases where significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the impacts of the loss of federal protections for the resource. Land tenure adjustments may result in the acquisition of other culturally significant lands, which would be afforded long-term federal protections and could enhance currently managed resources by consolidating holdings.

Impacts from Recreation Direction: The types and range of possible impacts on cultural resources from recreation are identified in Section 4.2.2.3. Alternatives B, C, and D would include comprehensive travel plans for the planning area. Currently, undesignated lands totaling approximately 352,200 acres are essentially open to OHV use. The plan would limit most OHV use to designated routes. The plan would also include signage, law enforcement, and resource monitoring. The development of travel management plans would require compliance with Section 106 of the NHPA to address the potential impacts on cultural resources.

Potential impacts on cultural resources resulting from open OHV use would be reduced by limiting their use to designated routes and providing more enforcement and resource monitoring. Alternative B would increase acreage closed to OHV use from approximately 1,300 acres to approximately 12,700 acres. Potential effects due to direct disturbance, soil compaction, altered surface water drainage, erosion, intrusions to setting, and access leading to vandalism and unauthorized collecting would be concentrated along the designated routes and in the smaller designated open area; but they would be reduced in other areas.

The emphasis on recreation in the Blackfoot River SRMA, Pocatello SRMA and Oneida Narrows SRMA may increase the potential for uses that may be incompatible with cultural resource uses and preservation. Management plans would be developed for these SMRAs which would require compliance with Section 106 of the NHPA and measures to identify resources and address effects.

Impacts from Special Designations Direction: Special designations and area-specific management plans, especially those related to the preservation of cultural resources, would provide the long-term protection of cultural resources by restricting incompatible uses. In Alternative B, the addition of approximately 400 acres for the Petticoat Peak RNA for protection of vegetative communities would provide additional, indirect protection to any cultural resources that may be present by restricting ground-disturbing activities.

4.2.2.6 Alternative C

Impacts from Vegetation Direction: Effects on cultural resources would be similar to those described for Alternative B; however, Alternative C would implement a lower level of pre- and post-fire vegetation treatments (approximately 54,920 acres) to improve LHCs and provide for long-term ecological health. There would be long-term effects associated with enhancing vegetation, improving LHC, and reducing erosion of archaeological sites. There could be short-term impacts due to the loss of access during treatment or closures for cultural uses. Long-term impacts could result from ground disturbance associated with treatments; the effects of chemicals; and the introduction of seeds, plant materials, and pollens, which may affect the accuracy of paleobotanical data on archaeological sites.

Impacts from Special Status Species Direction: Effects on cultural resources would be similar to those described for Alternative B. Restrictive buffers of a half-mile for the maintenance and improvement of special status species habitats would provide additional long-term indirect effects on any cultural resources present by reducing the potential for ground-disturbing actions, erosion, alterations to setting, and vandalism. Short-term impacts could result if seasonal closures inhibit tribal access to traditional use areas or sacred sites.

Impacts from Wildland Fire Management: Effects on cultural resources resulting from wildland fire management would be similar to those described in Section 4.2.2.3 for all alternatives. In Alternative C, fewer treatments would be implemented compared to Alternatives B or D. WFU would be allowed on up to approximately 212,600 acres, which is considerably more than in Alternative A (0 acres) but less than in Alternatives B (approximately 265,000 acres) and D (approximately 468,900 acres). Treatment of approximately 54,290 footprint acres is anticipated, which is more than in Alternative A (approximately 3,400 acres) and less than in either Alternative B (approximately 124,250 acres) or Alternative D (approximately 162,170 acres).

Inventory and avoidance requirements and stipulations for wildland fire management would help to avoid many of the impacts. Some resources, however, would not be identified, especially during suppression; and long-term impacts could result. In the long term, treatments could decrease the risk of impacts on cultural resources from catastrophic wildland fire and subsequent erosion.

Impacts from Lands and Realty Direction: The types and range of possible impacts on cultural resources from lands and realty actions are identified in Section 4.2.2.3. Effects would be similar to those described for Alternative B.

In Alternative C, acquisitions would be emphasized, including those to protect and better manage significant resource values. The acquisition of new land would provide long-term federal protection to any cultural resources included in the transaction and could enhance currently managed resources by consolidating holdings. Approximately 24,950 acres would be considered for disposal, which is less than in all of the other alternatives. Land tenure adjustments would be considered on approximately 144,100 acres, which is an increase of approximately 112,100 acres over Alternative A and a reduction of approximately 52,900 acres from Alternative B.

The presence or significance of resources in lands subject to disposal may not be known until further identification and evaluation is conducted. In cases where significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the impacts of the loss of federal protections for the resource.

Impacts from Recreation Direction: The types and range of possible impacts on cultural resources from recreation are identified in Section 4.2.2.3. Effects would be similar to those described for Alternative B. The conversion of open/undesignated OHV areas to limited OHV areas, reduction of trail densities, more law enforcement, and resource monitoring would reduce the risk of permanent loss of cultural resources. Potential effects due to direct disturbance, soil compaction, altered surface water drainage, erosion, intrusions to setting, and access leading to vandalism and unauthorized collecting would be concentrated along these routes but would be reduced in other areas.

The emphasis on recreation in the Blackfoot River SRMA, Pocatello SRMA, Oneida Narrows SRMA, and Campgrounds SRMA may increase the potential for uses that may be incompatible with cultural resource uses and preservation. Management plans would be developed for these SRMAs which would require compliance with Section 106 of the NHPA and measures to identify resources and address effects.

Impacts from Special Designations Direction: The types and range of possible impacts on cultural resources from special designations are identified in Section 4.2.2.3. Special Designations and area-specific management plans, especially those related to the preservation of cultural resources, provide for the long-term protection of cultural resources by restricting incompatible uses.

4.2.2.7 Alternative D

Impacts from Vegetation Direction: Effects on cultural resources would be similar to those described for Alternatives B and C, with the most acreage treated and greater potential effects on cultural resources (approximately 162,170 acres). Alternative D would increase vegetative treatments compared to Alternative B by 31% and compared to Alternative C by 195%. Therefore, compared to all alternatives, Alternative D would have the greatest potential to impact culturally significant resources over the short- and long-term.

Inventory and avoidance requirements and stipulations for vegetation management would help to avoid many of the impacts. Some resources, however, would not be identified, especially during treatment; and long-term impacts could result. In the long term, treatments could decrease the risk of impacts on cultural resources from catastrophic wildland fire and improved ecological health.

Impacts from Wildland Fire Management Direction: Effects on cultural resources resulting from wildland fire management would be similar to those described in Section 4.2.2.3 for all alternatives. WFU would be allowed on up to 468,900 acres, which would be much more than in Alternative A (0 acres), Alternative B (approximately 265,000 acres), and Alternative C (approximately 212,600 acres). Alternative D would treat approximately 200,900 acres, or 1.15 times more acres than the other 3 alternatives combined (approximately 174,500 acres).

The risk of impacts on cultural resources from wildland fire management would be greatest in Alternative D because of the amount of potentially affected acreage. Inventory and avoidance requirements and stipulations for wildland fire management would help to avoid many of the impacts. Some resources, however, would not be identified, especially during suppression; and long-term impacts could result. In the long term, treatments could decrease the risk of impacts on cultural resources from catastrophic wildland fire and subsequent erosion.

Impacts from Lands and Realty Direction: The types and range of possible impacts on cultural resources from lands and realty actions are identified in Section 4.2.2.3. In Alternatives B, C, and D, the BLM would adjust and consolidate public land ownership patterns in Zones 1, 2, and 3 consistent with resource values and efficient administration. Actions to better manage resources would have a long-term effect on the protection and preservation of cultural resources.

In Alternative D, land tenure adjustments would be considered on approximately 544,600 acres, which is an increase of approximately 512,600 acres over Alternative A. The acquisition of new

land would provide long-term federal protection to any cultural resources included in the transaction and could enhance currently managed resources by consolidating holdings. Approximately 67,060 acres would be considered for disposal, which is far more than in any of the other alternatives and an increase of approximately 28,500 acres over Alternative A.

The presence or significance of resources in lands subject to disposal may not be known until further identification and evaluation is conducted. In cases where significant cultural resources are present on public lands proposed for exchange or disposal to nonfederal entities, the BLM would need to resolve the impacts of the loss of federal protections for the resource. Similar to Alternative A, Locatable Minerals activity would total approximately 67,060 acres. Withdrawals from Locatable Minerals development could provide direct or indirect protection from potential impacts deriving from this activity. A withdrawn area, however, would still be subject to other land uses that could impact cultural resources.

Impacts from Recreation Direction: The types and range of possible impacts on cultural resources from recreation are identified in Section 4.2.2.3. Impacts on resources, if present, could be short term for alterations to setting or long term for direct disturbance. Alternatives B, C, and D would include further consideration of resource values in a comprehensive travel plan, including signage, law enforcement, and resource monitoring, which would result in long-term effects on cultural resources. Alternatives B, C, and D also would reduce open OHV use from current levels. Travel management plans would require compliance with Section 106 of the NHPA.

Effects from Alternative D would be similar to those described for Alternative B. The proposed increase in density, development of new trails, and minimal controls would result in greater potential for impacts on cultural resources than in Alternatives B or C but fewer than in Alternative A. The emphasis on recreation in the Blackfoot River SRMA, Pocatello SRMA and Oneida Narrows SRMA may increase the potential for uses that may be incompatible with cultural resource uses and preservation. Management plans would be developed for these SMRAs which would require compliance with Section 106 of the NHPA and measures to identify resources and address effects.

Potential effects due to direct disturbance, soil compaction, altered surface water drainage, erosion, intrusions to setting, and access leading to vandalism and unauthorized collecting would be concentrated along these routes and in the smaller designated open area; but they would be reduced in other areas.

4.2.2.8 Cumulative Impacts

Cumulative impacts on cultural resources includes consideration of the proposed alternatives in the context of other past, current, and reasonably foreseeable actions within the planning area, including BLM, Forest Service, Tribal and BIA, State of Idaho and private land. Other actions that are particularly relevant to cultural resources in the planning area include WFU, prescribed fire, fuel treatments, vegetation treatments, livestock grazing, timber harvesting, minerals and energy development, population growth, urban development, growth in recreational uses, OHV use, vandalism and looting of cultural sites, and recognition and assertion of tribal reserved treaty rights and traditional uses.

Past, Current and Future Actions: The types of impacts that have occurred and would continue to occur include destruction of cultural resources, loss of integrity due to physical or other disturbances, loss of setting, the effects of natural processes such as erosion and weathering, incremental disturbance from use or access, loss of access to traditional cultural properties, and impacts from vandalism and unauthorized collection.

Wildland fires would continue to occur. On federal- and state-managed lands there is an increased emphasis on WFU rather than immediate suppression. Wildland fires, WFU and suppression are associated with surface and other disturbances to cultural resources. Vegetation treatments are also planned on adjacent lands and are associated with impacts on cultural resources due to ground disturbance, the effects of chemicals and fire, introduction of seeds and pollens that can affect archaeological data, and potential loss of access to traditional use areas and tribal resources. Vegetation treatments would impact cultural resources in the long term by improving diversity of the vegetative community and habitat and reducing erosion.

Population growth, construction associated with urban development, access changes, and growth in recreation have impacted cultural resources through the loss or disturbance of resources that are not protected, changes in setting, pressure from incremental use, loss of access to tribal resources and in increased access leading to the vandalism of cultural resources. Historic properties adjacent to areas of growth and development would be most susceptible to future impacts. It is especially difficult to maintain the physical and visual integrity of historic trail resources throughout their length, given other actions and land ownership.

Similar to the travel management plan for the Caribou National Forest, travel management plans proposed under Alternatives B, C, and D would eliminate most open or undesignated OHV use. Designating routes can protect cultural resources located off the routes, but restrictions are difficult to enforce, especially as population and recreational use grows and other areas are closed. In Alternative A, there could be increased open OHV use on BLM-managed lands resulting in the potential for impacts.

There are ongoing actions by Native American groups to assert tribal reserved treaty rights and traditional uses on public lands. Tribal knowledge contributes to the management of cultural resources and traditional use areas or sacred sites.

Actions related to livestock grazing, minerals and energy development have impacted cultural resources in the past. Current and future activities regionally and in the planning area do not anticipate major increases in actions that could impact cultural resources.

These all can affect the types and intensity of uses within the planning area and affect the regional cultural resources base. For the most part, these actions or trends have put additional pressure on the protection and preservation of cultural resources in the region.

For future actions that could affect cultural resources on federal land or actions that are funded, licensed, or permitted by the federal government, compliance is required with the NHPA and other laws, statutes, and regulations. The effects of actions taken on protected cultural resources would have to be considered, and any adverse effects would have to be resolved. For many types of cultural resources, information has not been synthesized and needs to be better developed to properly assess the significance of the resource base. State agency actions using federal funds or

needing a federal permit require cultural resource review. Impacts on cultural resources would be avoided or mitigated in many of the regional actions. Development or actions on lands that are not protected by federal or state cultural resource statutes and regulatory protections could decrease the regional resource base or lead to the loss of Native American resources, which would affect the understanding of these resources and potentially limit management options within the planning area.

Current and future restrictions on recreation activities in other areas, population growth, resource extraction, and development can increase the use intensity within the planning area, potentially affecting cultural resources. Coordination with other agencies and communities could provide protection for cultural resource values.

While management direction does contribute to cumulative impacts, management measures are in place to identify and mitigate impacts resulting from authorized projects and activities. Mitigation of impacts could preclude other desirable management options and future uses. Impacts on known or unknown cultural resources resulting from such activities as natural forces, wildland fire, livestock grazing, dispersed recreation, OHV use, and vandalism can go unnoticed and may not be mitigated.

Because most cultural resources are location specific, fragile, and nonrenewable, cumulative impacts could occur through incremental degradation of the resource base from a variety of sources, reducing information and interpretive potential or affecting values important to Native American communities. Measures are in place to identify threats to resources and to prioritize management actions, but some impacts are unavoidable.

4.2.2.9 Tribal Treaty Rights and Interests

Tribal interests in the planning area precede the settlement of the region by European Americans. Treaty rights were provided for through the Fort Bridger Treaty and extend beyond current reservation boundaries to unoccupied public lands. Tribes are participants in the RMP process, and recognition of treaty rights and interests are considered with all associated management activities and land uses.

Tribal interests include the following:

- Treaty rights, including the rights to exercise their hunting, fishing, and gathering rights on federal lands outside the boundaries of the reservation.
- Tribal sovereignty, including the right of self-determination and a government-to-government relationship with federal representatives.
- Contemporary political and social rights and economic viability.
- Freedom to practice native religions and to protect, and have access to, religious and traditional use sites.
- Protection of archaeological sites, treatment of human burials and associated artifacts, and repatriation.

For Native American communities, often little distinction is drawn between cultural resources, such as traditional cultural use areas for resource gathering and overall treaty rights. Resources

found or used traditionally in a particular place may have cultural meaning and significance beyond the exercise of treaty rights.

Cultural Resources management measures would be the same in all alternatives and recognize tribal interests where they intersect with Cultural Resources management. Consultation with federally recognized tribes (e.g., Shoshone-Bannock Tribes) on the evaluation, impact assessment, and management of cultural resources and traditional cultural properties would be specifically called out as an action item. Management actions would be consistent with consultation and other requirements of FLPMA, NHPA, ARPA, NAGPRA, AIRFA, and Executive Orders 13175 and 13007.

The BLM understands that cultural resources include natural resources, sacred sites, traditional cultural properties, camps, burial areas and associated funerary objects, and other items of cultural patrimony to Native American communities. Objects that are of religious, traditional, or historic importance to tribes include plants, wildlife, and landscapes.

Because the BLM administers public lands within the ceded land boundary of the Fort Hall Indian Reservation, it has a responsibility to provide the conditions necessary for tribal members to satisfy their treaty rights and to consider the potential impacts of BLM plans, projects, programs, or activities. Members of the tribes may exercise their hunting, fishing, and gathering rights on unoccupied public lands outside the boundaries of the reservation. Tribal members may also access and use places or resources that are important for religious or cultural reasons.

4.2.3 SOILS

4.2.3.1 Summary

This section contains a discussion of the impacts on soils resources from implementing the four alternatives. All of the alternatives would affect soils resources, as all of them contain management actions that could disturb the surface to some extent, which can result in the loss of vegetation cover and increased soil compaction and erosion.

Most impacts from surface-disturbing activities are localized, short-term, and indirect, with some resource management actions (including Recreation and Minerals and Energy) potentially causing longer term impacts. However, BMPs and resource protection measures would be incorporated into project design and implementation to reduce impacts on soils. Restorative and protective measures involved in fish and wildlife, special status species, and vegetation management could have short-term impacts; but, overall, these measures could provide long-term protection to soils resources. Impacts on soil are assessed by the number of acres disturbed by proposed management activities.

It is not possible, based on this level of planning and analysis, to accurately quantify the precise extent of soil erosion due to the high variability in project location, duration, and timing, which are not identified in this document. To accurately quantify soil impacts, project-specific site analysis would be completed by the BLM before proceeding with any management actions. However, to aid in a more quantitative discussion, acreages have been calculated for wind-and-water-erodible soils open to certain management actions or designations. Those surface-disturbing activities occurring on wind- or water-erodible soils would have a higher potential for erosion. Some prime and unique farmlands do exist within the planning area and may be affected

by surface-disturbing activities. Resource protection measures would be implemented to protect these areas. The referenced impact indicators for soils resources are summarized by alternative in **Table 4.2.3-1**.

Table 4.2.3-1. Comparison of Soil Indicators by Alternative

Indicator	Alternative			
	A	B	C	D
Fire and nonfire vegetation treatment footprint acres identified	3,400	124,250	54,920	162,170
Acres Erodible Soils Open to Minerals Activities				
Fluid Minerals	173,978	28,922	153,104	172,688
Locatable Minerals	361,746	345,389	345,389	361,746
Mineral Materials	355,944	349,661	321,264	364,712
Solid Leasable Minerals (Phosphate)	361,910	349,661	349,661	364,712
Acres of *wind-erodible* soils open, undesignated, and limited OHV use	361,266	353,320	353,320	353,320
Acres of *water-erodible* soils open, undesignated, and limited OHV use	215,582	208,452	208,452	208,452

4.2.3.2 Methods of Analysis

The baseline used for the impact analysis is the current condition or situation described in Chapter 3 (affected environment). Information used in the analysis about soils and the effects on soils from various management actions was compiled from Natural Resources Conservation Service soil surveys, other agency maps and documentation, relevant literature, and resource professionals. The analysis in this chapter represents best estimates of impacts because exact locations of potential development or management actions are unknown. A qualitative discussion based on professional judgment and IDT knowledge is presented, with comparisons being drawn among alternatives where information is available and where it would add to the discussion. The precise extent of erosion cannot be quantified due to the variability in soil types, the unknowns regarding extent, placement, timing, and type of soil disturbances, and the conditions at the time of disturbances.

***Indicators*.** The primary indicator used to assess impacts on soils resources is the potential number of acres that could be disturbed and the likelihood of the type of activity to cause or affect soil erosion or compaction.

***Methods and Assumptions*.** The analysis is based on the following assumptions:

- BMPs for protecting soils would be considered and incorporated into plans or permits, as appropriate, such as the Idaho Forest Practices Act and BMPs for Mining in Idaho.
- Disturbed sites would be reclaimed as soon as practicable following disturbances.
- Surface-disturbing activities on sensitive or erosive soils, such as oil and gas and geothermal leasing stipulations, would be limited.
- Substantial disturbance to soils, including compaction of soil or changes in vegetative cover, would increase erosion and could diminish soil productivity. The greater the

numbers of acres open to surface disturbance, the greater the likelihood of having increased soil compaction and erosion.

- Soils data is at a much smaller scale (1:250K) than most of the other GIS data used (1:24K). The 1:24K soils data was not complete and available for the planning area; therefore, acreage figures used to conduct soils impacts yield only very rough estimates.

In all alternatives, Soils direction would not be affected by Air Quality, Cultural Resources, Paleontological Resources and Visual Resources so these resources are not further addressed in this section.

4.2.3.3 Impacts Common to all Alternatives

Current surface-disturbing activities are expected to continue and include vegetation treatment, fish and wildlife management, wildland fire management and suppression, livestock grazing, minerals and energy development and production, recreation and OHV use, and woodland harvest/vegetation removal. As a result of surface-disturbing activities, a certain degree of soil erosion is expected in all alternatives. Surface disturbance can result in the loss of vegetation or the prevention of revegetation, which can increase soil erosion.

Impacts from Soils Direction: Soils resources would continue to be managed to protect highly erodible soils and to limit soil erosion, resulting in long-term direct impacts. BMPs would be incorporated into planning and permitting efforts, including performing reclamation activities as soon as practicable following a disturbance and limiting surface-disturbing activities on sensitive or erosive soils. All management actions for other resource uses would incorporate resource protection measures to generally limit soil loss.

Impacts from Vegetation Direction: Vegetation treatment projects would have short-term indirect impacts on soils resources, including temporary displacement of vegetation and impacts from equipment used in treatment projects that could increase soil compaction and erosion. However, BMPs associated with surface-disturbing activities (**Appendix C**) would be incorporated to mitigate these impacts and to prevent long-term impacts on soils. Additionally, these enhancement projects would provide long-term protection to soils resources by improving overall vegetative health and cover that reduce erosive forces.

Managing vegetation resources could have indirect and short-term impacts on soils resources and long-term indirect impacts. Management actions taken to improve vegetation would result in long-term impacts on soils resources. Protecting vegetation would maintain soil productivity and reduce erosion by slowing and filtering overland flow, while reducing erosive forces. The complex root systems of plants hold soils together, preventing erosion. The base stems and trunks of vegetation also allow water to percolate into the soil instead of running off. Maintaining sufficient vegetation would prevent soil degradation.

Vegetation treatment projects would have short-term indirect impacts on soils resources, including temporary displacement of vegetation and impacts from equipment used in treatment projects that could increase soil compaction and erosion. However, BMPs associated with surface-disturbing activities would be incorporated to reduce these impacts and prevent long-term impacts on soils. Additionally, these enhancement projects would provide long-term

protection to soils resources by improving overall vegetative health and cover that reduce erosive forces.

Impacts from Fish and Wildlife Direction: Seasonal-important habitat protections would provide long-term impacts in preserving soils resources. Soils would be protected during highest-erodibility periods in the late winter and early spring. This would lead to less soil compaction and erosion. Surface developments and disturbances would be limited, providing additional protection to soils resources.

Impacts from Special Status Species Direction: Management actions taken to protect and improve special status species habitat would protect soils resources by limiting surface development and surface-disturbing activities. All alternatives are similar in the types of conservation measures implemented, including spatial and seasonal restrictions on disturbance and no-disturbance buffer zones around various types of habitat such as breeding grounds and plant populations.

Impacts from Water Resources Direction: Riparian-wetland areas would be maintained, restored, protected with respect to soils, vegetation, and hydrology/water quality. Thus, riparian management would have short- and long-term direct impacts on soils.

Actions aimed at improving water bodies listed on the state's 303d list (e.g., changes in grazing management and limits on surface-disturbing activities) would maintain vegetation and reduce erosion.

Impacts from Wildland Fire Management Direction: Wildland and prescribed fires reduce canopy, vegetation, and ground cover, thereby exposing soils to increased wind and water erosion and increased runoff potential. Fires can also adversely affect the soil's physical properties, reducing infiltration. In extreme conditions, wildland fires sterilize and break down soils, making them more susceptible to erosion.

Suppression of wildland fires would have short-term impacts from using motorized vehicles to help contain wildland fires, from digging fire lines, and from bulldozing suppression-related firelines.

The use of prescribed fires to treat vegetation would cause some short-term impacts on soils resources, including soil compaction and the potential for increased erosion (e.g., through wind and water) where these fires occur. However, by incorporating resource protection measures, these impacts would be reduced and more manageable than those created by wildland fires. Burned areas would be reclaimed and reseeded as soon as practicable after fires to reduce erosion. In the long term, prescribed fires to reduce fuel loads would protect soils resources by reducing the potential for a high-intensity wildland fire to occur.

Wildland fire management activities, though resulting in short-term impacts, would promote a more natural fire regime, thereby decreasing the occurrence of uncharacteristic wildland fires that could have long-term impacts on soils resources. Reducing severe wildland fires would limit aggressive fire suppression activities and would increase long-term stability of vegetation and soils resources.

Impacts from wildland fires are similar to those for prescribed fire, but the location of the fire could not be controlled, and erosion-sensitive areas could be burned, resulting in greater post-fire erosion risks.

Mechanical treatments would disturb soils and increase erosion potential. However, impacts resulting in erosion could be less than those from fire (wildland or prescribed) due to plant debris remaining after the treatment. **Table 4.2.3-2** lists acres of erodible soils by vegetation type and treatment acres by alternative.

Residual plant debris would reduce the potential for wind and water erosion. Resource protection measures would be incorporated to reduce impacts from mechanical treatment activities.

Impacts from Forestry Direction: Managing forestry resources could have indirect and short-term impacts on soils resources. Commercial harvest of forest and woodland products would have an impact on soils resources in relation to the building of roads and skid trails needed to support the harvest activities. These activities would break down soil stability, leading to increased erosion during the short term. The effects of woodlands and forest management on soils and water would be reduced by implementing identified management direction along with appropriate management practices, techniques or guidelines as identified in **Appendix C**.

Managing to restore and improve the health of forests and woodlands would have long-term impacts in reducing the potential for wildland fires by reducing understory fuel loading. Better diversity of understory would increase the stability of soils, thus reducing erosion. General improvements to vegetation health and diversity of forests and woodlands would improve soil stability and reduce erosion.

Impacts from Lands and Realty Direction: Changes in land ownership could result in changes in land management, but whether these impacts would be short or long term, direct or indirect cannot presently be predicted.

LUAs and utility ROWs could result in short-term surface disturbances and could increase erosion and soil compaction. BMPs would be incorporated to minimize these impacts. Natural resource values and sensitive resources would be considered in management decisions.

Table 4.2.3-2. Approximate Acres of Erodible Soils by Vegetation Type and Treatment Acres

Vegetation Type	Total Acreage	Water Erodible Soils in Vegetation Type	Wind Erodible Soils in Vegetation Type	Footprint Treatment Acres[1] by Alternative			
				A	B	C	D
Low-Elevation Shrub	38,100	16,957	29,796	0.0	18,950	0.0	9,500
Perennial Grass	64,600	17,445	34,526	0.0	50,200	1,300	53,300
Seedings	42,100	893	35,080	0.0	0.0	0.0	0.0
Mid-Elevation Shrub	142,000	60,425	87,423	0.0	21,900	5,350	52,700
Mountain Shrub	187,100	69,823	101,805	0.0	16,500	16,600	15,000
Juniper	25,700	6,428	16,243	0.0	3,500	11,300	11,300
Dry Conifer	49,800	21,872	22,868	1,800	6,200	10,000	10,000
Aspen, Aspen/Conifer Mix	40,500	16,864	16,008	1,600	7,000	10,000	10,000
Wet/Cold Conifer	700	229	230	0.0	0.0	70	70
Riparian	6,600	1,262	3,756	0.0	0.0	100	100
Other/Vegetated Lava	16,600	3,607	13,568	0.0	0.0	200	200
Total acres	613,800	215,806	361,305	3,400	124,250	54,920	162,170

[1]Defines the maximum area where vegetation treatments could be used though the actual number of acres where treatment would occur may be less.

Prime and Unique Farmlands Direction: There are approximately 2,900 acres of prime and unique farmlands within the planning area, which is less than 1% of the planning area. Some surface-disturbing activities may occur on these lands, and resource protection measures would be implemented to minimize erosion and potential impacts on these lands.

Impacts from Livestock Grazing Direction: The following acres, by alternative, would be available to grazing: Alternative A: 556,300; Alternative B: 560,000; Alternative C: 555,300; and Alternative D: 527,800. Livestock grazing could reduce vegetation cover and cause surface disturbance through hoof action and soil compaction in localized areas, increasing erosion. Benefits from proper grazing include adding organic material to the soil from trampling litter and adding nutrients through feces and urine. Implementing livestock grazing management according to *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) would minimize impacts on soils resources.

Impacts from Minerals and Energy Direction: Direct impacts on soils resources would include the loss of soil during salvage, sediment loss due to erosion, exposure and potential mobilization of selenium, metals such as selenium and other contaminants, and reduced productivity. Indirect impacts related to soils resources would include water quality degradation related to erosion and reduced viability of vegetation related to soil fertility factors. At phosphate mines the indirect impacts could also include selenium and other metal contaminants in sediment and bioaccumulation of selenium in reclamation vegetation. Bioaccumulation of selenium could be greatly reduced or eliminated by reclaiming waste rock disposal areas with caps and covers comprised of topsoil, chert, and/or limestone that has little or no selenium content (see Section 4.2.9, Water Resources). Potential impacts on soils resources would be similar for the different alternatives presented, although the acres affected and reclaimed would only vary slightly between the alternatives due to the relatively Low potential for extracting economically feasible quantities of minerals.

The risk of prime farmlands being directly impacted would be extremely Low due to their location (Low- or moderate-potential areas) and their infrequent occurrence. If a site is selected on prime farmlands, agricultural productivity of the site would be lost to a permanent facility or reduced in the rehabilitation effort.

Surface-disturbing activities related to minerals and energy exploration and development increase erosion and soil compaction. Direct physical impacts on soils resources include compaction and the crushing of soil and soil crust by equipment during recovery, stockpiling, and subsequent replacement during reclamation. Physical effects of soil compaction would be reduce permeability and porosity, increase damage to microbiotic crusts, increase bulk density, decrease available water holding capacity, increase erosion potential, reduce gaseous exchange, and increase loss of soil structure. Soils in the planning area have a high percentage of coarse fragments, which would provide some support for heavy equipment without completely compressing the underlying soils. Surface disturbance and removal of soils resources for replacement during reclamation activities would result in direct impacts on soils. Physical and chemical changes to the soil would be expected to be moderate and would occur by mixing during initial salvage operations and when the soil is placed in stockpiles for future reclamation use.

Constructing facilities, pipelines, and roads would cause localized short-term effects on soils until the disturbed areas have been reclaimed. Impacts include soil erosion, soil compaction, and removal of vegetative cover. Impacts from road construction include short-term erosion and long-term, but localized, soil compaction.

Microorganisms such as bacteria and fungi are important in the decomposition of biological materials and the formation and improvement of soil itself (USDA 1979). Natural processes, such as dust blowing on the site from other areas, would reinoculate the site with these microorganisms. Root penetration and the development of a rhizosphere environment are also thought to perpetuate the growth of microorganisms (USDA 1979). Microbiotic soil crusts are recognized as an important aspect of soil quality (USDA 2003), and damage to these crusts would occur during disturbance, reducing soil quality by increasing erosion potential and changing the properties of the associated soil.

Productivity is defined as the rate of vegetation production per unit area, usually expressed in terms of weight or energy. Primary factors that influence natural soil productivity include length of growing season, climate and soil depth, and production/fertility. Production and fertility of the stockpiled growth medium would be directly affected by mixing of the soils during salvage operations. Incorporation of slash and vegetative materials into the growth medium during stripping would increase the organic matter content of the material and elevate the production potential. Mixing of soils with low coarse fragment content together with soils of high coarse fragment content would serve to dilute the coarse fragment content and is likely to increase the production potential of the growth medium. Soil compaction can contribute to soil erosion and reduced soil productivity. Productivity loss due to compaction influences would be negligible with implementation of BMPs.

Soil salvage, planting methods, and seed mix selection are important for establishment of permanent vegetation on reclaimed areas. Topsoil/growth medium would be salvaged for reclamation purposes and stockpiles placed on stable landforms would be protected from erosional forces. Temporary cover crops established on the stockpiles serve to enhance productivity potential and reduce soil loss over the life of the stockpile.

Direct haul and placement of growth medium to sites ready for immediate reclamation would minimize the need for stockpiling the material and would be done whenever possible. Although the topsoil within the topsoil stockpile footprints would not be salvaged, once the stockpiled topsoil is removed from these areas and used for reclamation, the existing topsoil underneath the stockpiled locations would be ripped and scarified to aid in reclamation.

Localized declines in soil quantity are directly associated with increasing loss of soils from erosion and displacement, loss of fine litter and coarse woody debris, changes in vegetation composition, and increases in bulk density from compaction (USDA 2003). A portion of the soils would be physically lost during salvage and replacement operations through mechanical and erosion effects. Soil mixing and loss of some soil would also occur during final growth medium distribution and completion of reclamation.

Erosion would occur in areas of new or increased surface disturbance. Measures would be implemented for sediment and erosion control to reduce soil loss and sedimentation that could be caused by sheet and gully erosion from drainage and surface runoff. Reducing the duration of

time that the soil is exposed would limit the degree of erosion by wind or water. Growth medium stockpiles would be graded and seeded to reduce the loss of soils resources by erosion. Concurrent and timely revegetation of disturbed areas would reduce the potential for soil erosion by improving ground cover.

Soil erosion potential is determined based on physical soil characteristics and slope. Areas located on steep slopes are inherently more susceptible to erosion. Acres of erodible soils in areas open to mineral activities by alternative are identified in **Table 4.2.3-3**.

Table 4.2.3-3. Approximate Acres of Erodible Soils Open to Minerals Activities

	Alternative			
	A	**B**	**C**	**D**
Fluid Minerals	173,978	28,922	153,104	172,688
Locatable Minerals	361,746	345,389	345,389	361,746
Mineral Materials	355,944	349,661	321,264	364,712
Solid Leasable Minerals (Phosphate)	361,910	349,661	349,661	364,712

Localized factors such as type and amount of vegetative ground cover, percentage, and type of rock fragments on the ground surface, and/or implementation of soil conservation BMPs may prevent soil erosion, even in areas with inherently high soil erosion potential.

Potential for water erosion would be increased after soil salvage operations due to the removal of the vegetative cover and the loss of soil structure. Erosion of topsoil/growth medium after redistribution on regraded sites during the final stages of reclamation would also have a greater potential until the soil is stabilized by successful revegetation.

BMPs, management stipulations, resource protection measures and required reclamation activities would improve local soil conditions, minimize impacts by stabilizing soil, improve local surface hydrology, reduce the potential for erosion, and reduce the potential for erosion, compaction and soil loss. Design and location of mine pits, roads, and ancillary facilities require that operators avoid steep slopes and highly erodible soils and construct appropriate road drainage systems (e.g., culverts and road crossings) to avoid excessive runoff. These areas would also be designed to be non-permanent to facilitate rehabilitation following project completion. Excavation and grading of sites requires that topsoil and subsoil be separated, stockpiled, and protected to allow for their replacement following project completion. Operators would also be required to develop and implement road maintenance plans to reduce erosion and runoff. Reserve pits would be lined and could require a leak detection system to protect soils and water resources.

Surface runoff management ditches, culverts, settling ponds, and sediment traps would be constructed following approved BMPs and practices for storm water pollution prevention. Storm Water Pollution Prevention Plans are required and would be developed in accordance with US EPA General Storm Water and National Pollution Discharge Elimination System permit requirements, in addition to other regulatory input.

Sediment entrained in runoff would be routed to settlement basins to collect, settle, infiltrate, and evaporate runoff water. These structures would be sized to contain the expected volume of

sediment and runoff associated with the 100-year, 24-hour precipitation event. The settlement basins would be properly maintained to ensure adequate containment volume is available throughout the life of the mine. Silt fences, straw bale filters, and rock check dams would also be used to control sediment during construction activities.

Wind erosion hazard is expected to be low to moderate due to the characteristic soil features, such as the high percentage of coarse fragments throughout the soil profile. The wind erodibility hazard for the majority of soils within much of the planning area is considered moderate. Concurrent and timely revegetation of disturbed areas would reduce the potential for soil erosion by improving ground cover.

Soil salvage and site reclamation for all alternatives would meet management objectives to maintain soil productivity by following BMPs and proven reclamation practices. Detrimental soil disturbance could apply to disturbances such as ponds, ditches, topsoil stockpiles, and temporary roads that are outside the mine footprints. All disturbed soils would be ameliorated to meet soil quality standards and guidelines. Topsoil/growth medium would be salvaged prior to disturbance for use during reclamation. An unknown quantity of soils resources in the planning area would be expected to be not recovered as growth medium for reclamation due to limiting factors such as rock outcrop, excessive coarse fragments or slope. These areas where soil is not recovered would be scattered throughout the planning area depending upon the site conditions.

Mackowiak et al. (2004) determined that selenium levels in vegetation growing in undisturbed soils overlying and derived from Phosphoria formation rocks tended to be higher than vegetation in undisturbed soils derived from Wells Limestone or Rex Chert. The total concentration of selenium in soils does not directly determine the concentration of selenium in the plants growing on those soils (Lakin 1972; Bauer 1997; Fisher 1991). Palmer and Olson (1991) indicate that the soluble soil selenium should be a reasonable predictor of plant selenium content. Absorption by plants depends on the chemical form and solubility of the selenium, as well as the pH and moisture content of the soil. The actual amount of selenium in a given plant tissue reflects the amount of selenium available to the plant as well as the accumulating proclivity of that plant (Prodgers and Munshower 1991). The reclamation seed mix would not include vegetation species considered to be selenium accumulator plants.

Selenium BMPs are designed to reduce potential impacts from selenium mobilization to negligible levels. Studies conducted in the vicinity of the Smoky Canyon Mine, Panels F & G area (JBR Environmental Consultants, Inc. [JBR] 2001) and at other phosphate mining operations in southeast Idaho (Idaho Mining Association [IMA] 2000) to determine the effect of different reclamation treatments on the selenium concentration of growth medium and vegetation. Geochemical analysis conducted by JBR at the Smoky Canyon Mine (JBR 2001) included testing for pH, CEC, total selenium, extractable selenium, and trace metals cadmium, copper, manganese, molybdenum, nickel, zinc, and vanadium. Analysis indicated that there is little correlation between the total selenium and extractable selenium concentrations of the same soil/growth medium material. Additionally, the total concentration of selenium in soils was poorly correlated with the concentration of selenium in the plants growing on those soils. The correlation with extractable selenium was much better. Absorption by plants depends on the chemical form and solubility of the selenium, the tendency for selenium accumulation in certain plant species, as well as soil conditions including pH and moisture content.

The current technique to reduce the exposure of seleniferous overburden to the surface environment is the placement of low selenium chert as a thick cover. Deep and coarse textured chert would deter deep root penetration into underlying seleniferous overburden, thereby reducing bioaccumulation in reclamation vegetation. Studies defining an optimal capping depth that prevents root penetration into the waste rock have not been conducted (Mackowiak et al. 2004). Rooting depths for the reclamation seed mix would typically be less than 4 feet, and the total depth of the approximately four-foot chert cap plus the growth medium layer would be approximately five to six feet.

Soils with slightly elevated selenium concentrations would be mixed with growth medium containing lower concentration to dilute the total concentration in salvaged soils. The Forest Service currently recommends using soil materials and growth medium for reclamation that contain less than 13 mg/kg total selenium (dry weight) and less than 1.0 mg/L extractable selenium when used in combination with other preventative BMPs (Forest Service 2003a). They have acknowledged that the total selenium recommendation may be set higher than 13 mg/kg based on further testing, however the extractable value would likely remain at or near 1.0 mg/L.

Operators could be required to reduce the loss of soil fertility within their project areas by incorporating slash into the salvaged growth medium to increase the organic matter content, mixing soil types containing few coarse fragments together with soils containing high coarse fragment content in order to dilute the total coarse fragment percentage, and timing salvage operations to optimize revegetation.

Prior to seeding, applied topsoil would be loosened, if it were compacted during application, to allow unrestricted root growth until reclamation activities have concluded.

Alteration of the soil, through the rehabilitation effort, would result in the formation of new soils with different properties. However, where there is significant removal and replacement of topsoil, soil productivity generally would be similar to pre-disturbed conditions.

A slight shift or change in plant communities and productivity would occur in rehabilitation areas. Plant productivity would decrease where there is little topsoil restoration, but may be enhanced if an additional thickness of topsoil is added to shallow sites. Plant communities could be influenced by the introduction of nonnative species.

Upon restoration of sites, soils would have a reduced productivity level but overall impacts are anticipated to be small after mitigation measures are completed. With implementation of growth medium salvage and reuse practices, soil conservation measures, BMPs, and other proposed operating procedures, the impacts would be site-specific and long term.

In addition to monitoring effectiveness of proposed soil protection measures and BMPs, soil resource monitoring plan would require:

- Monitoring of vegetation germination and growth for assessment of erosion potential based on the percentage of ground cover and seedling establishment effectiveness.
- Soil sampling and analysis for initial nutrient amendment assessment for reclamation activities and to evaluate areas of Low production after reclamation activities have concluded.

It is expected that with matching BMPs to meet the capability of the land and with appropriate mitigation measures to minimize impact, soil losses would be within the erosion limit of 5 tons/acre/year.

Impacts from the RFDS of Fluid Minerals Direction: Impacts are similar to those impacts from other minerals and energy management. The RFDS of Fluid Minerals could have indirect short-term and long-term impacts on soils resources. The RFDS predicts approximately 446 acres of surface-disturbing activities, some of which may occur on wind- or water-erodible soils.

Surface-disturbing activities related to minerals and energy exploration and development increase erosion and soil compaction. Impacts from the construction of mine facilities, pipelines, and roads include soil erosion, soil compaction, and removal of vegetative cover. These effects would be short term, occurring on disturbed soils until the disturbed areas have been reclaimed.

Based on the RFDS for Fluid Minerals in **Appendices P** and **Q**, direct environmental soils impacts would occur on about 314 acres of roads, drill pads, and facilities. Such surface-disturbing activity would impact all natural soil profile development. Soil compaction due to heavy equipment use on moist, fine-textured soils would lower productivity; and additional ground exploratory efforts, if required, would significantly increase surface disturbance and areas of soil compaction.

BMPs, management stipulations, resource protection measures and required reclamation activities contained in the BLM's *Surface Operating Standards and Guidelines for Oil and Gas Development* (Gold Book) could limit potential impacts and reduce the potential for erosion, compaction, and soil loss. Design and location of well pads, roads, and ancillary facilities require that operators avoid steep slopes and highly erodible soils and construct appropriate road drainage systems (e.g., culverts and road crossings) to avoid excessive runoff. These areas would also be designed to be non-permanent to facilitate rehabilitation following project completion. Excavation and grading of sites require that topsoil and subsoil be separated, stockpiled, and protected to allow for their replacement following project completion. Operators would also be required to develop and implement road maintenance plans to reduce erosion and runoff. Reserve pits would be lined and could require a leak detection system to protect soil and water resources.

Impacts from Recreation Direction: Managing recreational resources could have direct short-term and long-term impacts on soils resources. Recreation activities have geographically limited impacts on soils resources when those resources are in the vicinity of highly used recreation areas, including campgrounds, parking lots, trailheads, and other recreation-related use areas. Trail use (walking, equestrian, OHV, and mountain biking) results in soil compaction and loss of vegetative cover, which leads to increased erosion, a direct impact. There would be short-term local impacts by disturbing surface soils and removing and trampling vegetation, but dispersed recreation would cause less erosion, and dispersed recreation would indirectly reduce impacts on soils resources.

Table 4.2.3-4 describes acres of erodible soils in OHV designations by alternative. The overall direct impact on erodible soils from OHVs would be similar across all action alternatives, which limits motorized travel to designated routes. There would be a slight difference between Alternatives B, C, and D in the distribution of these impacts between wind and water erodible

soils. Alternative A would continue to allow cross-country travel in "open" and undesignated areas, which would result in more direct impacts to wind and water erodible soils.

Table 4.2.3-4. Acres of Wind and Water Erodible Soils by OHV Designation and Alternative

	Alternative							
	A		B		C		D	
	Wind	Water	Wind	Water	Wind	Water	Wind	Water
Open	35,650	17,489	0.0	0.0	0.0	0.0	0.0	0.0
Undesignated	182,141	88,230	0.0	0.0	0.0	0.0	0.0	0.0
Closed	486	248	8,252	7,378	8,252	7,378	8,252	7,378
Limited	143,475	109,863	353,320	208,452	353,320	208,452	353,320	208,452
Total	361,572	215,830	361,572	215,830	361,572	215,830	361,572	215,830

Impacts from Special Designations Direction: The management actions for special designations could maintain or improve soils resources, depending on the reason for designation and the management guidelines within those designations. Protections aimed at conserving vegetation and limitations on surface-disturbing and other disruptive activities would maintain soil productivity and minimize erosion. Specific management guidelines would be created for each special designation area and could indirectly impact soils resources.

In ACECs and other special designations where management direction limits surface-disturbing activities, soils resources could receive long-term indirect impacts.

4.2.3.4 Alternative A

Impacts from all Vegetation Direction: Alternative A would emphasize the production of native vegetation and crested wheatgrass for wildlife and livestock production to meet *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) and largely relies on natural successional processes to improve the distribution of *LHC* classes in favor of LHC-A. Fewer fire and nonfire vegetation treatments would be implemented in Alternative A, resulting in fewer surface-disturbing management activities and fewer short-term impacts from surface disturbance. Only post-wildland fire vegetation treatments would be used, which would indirectly effect soil stability and reduce soil loss and would also include prescribed fire, mechanical treatment, fertilizing, seeding, and mechanical and chemical noxious weed control methods. However, these treatments would be limited to approximately 3,400 acres in the Aspen/Aspen Conifer Mix/Dry Conifer types (see **Table 4.2.5-2**, in Section 4.2.5, Vegetation).

Soil stability would largely be maintained and improved in the Shrub Steppe (Low- and Mid-Elevation Shrub, Mountain Shrub) as an indirect result of similar vegetation treatments, but only following fire suppression. Over the long term, Shrub Steppe vegetation in Alternative A would generally move toward LHC-A (71%) and could be expected to also lead to healthier and more stable soil conditions. This LHC would be comparable to Alternative C, but less slightly less than either Alternative B (74%) or D (76%). Alternative A would provide slightly less long-term indirect protection to soils resources in the Aspen/Aspen Confer Mix/Dry Conifer types, as LHC-A is predicted to decline slightly and LHC-C is expected to increase slightly.

Impacts from Special Status Species Direction: When compared to Alternatives B and C, there would be fewer buffer zones in place around important habitat (e.g., breeding grounds and plant populations), resulting in less indirect protection for soil resources.

Impacts from Wildland Fire Management Direction: Impacts from treatment activities, including fire and nonfire treatments, would occur to the least degree in this alternative. Approximately 3,400 acres would be treated over the next 10 years by various treatment methods (prescribed fire, mechanical treatments), which would cause the surface disturbance loss of vegetation, resulting in increased soil compaction and erosion. However, the level of surface disturbance would be less than in Alternatives B, C, or D.

Impacts from Lands and Realty Direction: Additional restrictions, which may indirectly protect soil resources if surface-disturbing activities are limited, would be placed on approximately 42,300 acres and approximately 31,900 acres would be closed. Approximately 60,700 acres would be subject to withdrawals, and classifications would be finalized for seven RNAs. This would total approximately 1,500 acres of public lands that, depending on management guidelines for each RNA, may indirectly protect soils resources within each designation.

Impacts from Minerals and Energy Direction: About 602,600 acres would be open to Fluid Minerals. Approximately 314,000 acres would have an NSO stipulation, and approximately 11,200 acres would be subject to nondiscretionary closure, which would prevent surface disturbance and erosion. About 29% of the area open to Fluid Mineral development (approximately 173,978 acres) would occur on either water-or wind-erodible soils (**Table 4.2.3-3**).

About 591,200 acres would be open to Solid Leasable Minerals, with approximately 22,600 acres subject to discretionary and nondiscretionary closure. Areas open to Solid Leasable Minerals could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 61% of the area open to Solid Leasable Minerals (e.g., phosphate) development (approximately 361,910 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 581,100 acres would be open to Mineral Materials development, with approximately 32,700 acres subject to discretionary and nondiscretionary closure. Areas open to Mineral Materials could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 61% of the area open to Mineral Materials development (approximately 355,944 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 582,600 acres would be open to Locatable Minerals claims, with approximately 31,200 acres subject to discretionary and nondiscretionary closure. Areas open to Locatable Minerals could experience greater soil erosion, but soils resources within closed areas would be indirectly protected. About 62% of the area open to Mineral Materials development (approximately 361,746 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

Impacts from Recreation Direction: Lands would continue to be managed for dispersed recreation. OHV lands would continue to be managed according to existing designations. In this alternative, erosion and compaction impacts would continue to occur at current rates. In

Alternative A, approximately 1,300 acres would be closed to all vehicles, approximately 61,300 acres would be open to all vehicles, and approximately 199,000 acres would limit all vehicles to designated routes. Approximately 352,200 acres would remain undesignated.

Recreation would be recognized as the principal use of the lands in the Blackfoot River SRMA and the Pocatello OHV SRMA; these areas total approximately 55,200 acres. Recreation and OHV activities in these areas would have a direct impact on soils resources. While these SRMAs would concentrate public use, about 558,600 acres would be available as an Extensive Recreation Management Area (ERMA), which could result in impacts on soils resources, depending on the type and intensity of use.

Impacts from Special Designations Direction: There are approximately 11,200 acres designated as Wilderness Study Areas (WSAs), approximately 9,900 acres of ACEC designations, and approximately 1,500 acres of RNA designations. No additional areas would be added in Alternative A. In this alternative, approximately 22,600 acres would be protected by these designations, which, depending on management guidelines for each, may offer indirect protection to soils resources within each designation.

4.2.3.5 Alternative B

Impacts from Vegetation Direction: Alternative B would emphasize vegetation treatments to meet *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a), but would largely rely on a combination of fire suppression and pre- and post-wildland fire treatments to improve the distribution of LHC classes in favor of LHC-A. Alternative B would use various mechanical treatments and harvest rotations, which would result in more short-term surface disturbance and soil impacts but would more quickly reach a long-term stability of vegetation resources, thus protecting soils resources. BMPs would be incorporated during surface-disturbing activities to minimize short-term impacts.

Only post-fire treatments would occur in the Wet/Cold Conifer vegetation type. Because more pre- and post-fire and nonfire vegetation treatments would be implemented in Alternative B, the resulting surface-disturbing activities would result in more short-term impacts on soils resources.

Over the long term, vegetation treatments would indirectly effect soil stability and reduce soil loss as vegetation treatments are increased 44 times over Alternative A (**Table 4.2.3-2**). Soil stability would largely be maintained and improved in the Shrub Steppe (Low- and Mid-Elevation Shrub, Mountain Shrub). Over the long term, Shrub Steppe vegetation in Alternative B would generally move toward LHC-A (74%) and could be expected to also lead to healthier and more stable soil conditions (**Table 4.2.5-1**, in Section 4.2.5, Vegetation). About 46% of the vegetation treatments would be concentrated in the highly vulnerable Low-Elevation Shrub type compared to no treatments in Alternative A, about 2% in Alternative C, and 4% in Alternative D. This improvement in overall LHC-A for all vegetation would be slightly more compared to Alternative C (71%), but slightly less than Alternative D (76%).

Overall, Alternative B would provide improved soil conditions in the Low-Elevation Shrub, Mountain Shrub, and Aspen/Aspen Conifer Mix/Dry Conifer types where vegetation treatments would meet desired LHC for LHC-A. Soil conditions would not likely improve to the same

degree in the Mid-Elevation Shrub, naturally occurring Juniper, and Wet/Cold Conifer types where desired LHC-A would not be met.

Impacts from Special Status Species Direction: There would be indirect protection for soil resources through restrictions on surface-disturbing and development activities, and from habitat buffer zones. This protection would be more when compared to Alternatives A and D, but less when compared to Alternative C.

Impacts from Lands and Realty Direction: Areas would be designated as open, avoidance, exclusion, and restricted to LUA where uses are incompatible or conflict with sensitive resources management. Approximately 76,100 acres would be subject to withdrawal. Withdrawals would be finalized for 8 RNAs (approximately 1,900 acres), and the Soda Springs Hills Management Area (approximately 15,000 acres), which, depending on management guidelines for each RNA, may offer indirect protection to soils resources.

Impacts from Minerals and Energy Direction: Approximately 344,500 acres would be open for Fluid Mineral Leasing, about 226,000 acres of which would be managed with an NSO stipulation. Approximately 11,200 acres would be closed and about 258,100 acres would be administratively unavailable for Fluid Mineral Leasing, which would prevent surface disturbance and soil erosion. Although unlikely, leasing may be allowed in the area that is administratively unavailable if it is demonstrated through additional NEPA analysis that the objectives for initially holding the lands from lease offering can be alternatively met or no longer apply. About 8% of the area open to Fluid Minerals development (approximately 28,922 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 582,400 acres would be open to Solid Leasable Minerals, with approximately 31,400 acres subject to discretionary and nondiscretionary closure. Areas open to Solid Leasable Minerals could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 60% of the area open to Solid Leasable Minerals (e.g., phosphate) development (approximately 349,661 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 582,400 acres would be open to Mineral Materials development, with approximately 31,400 acres subject to discretionary and nondiscretionary closure. Areas open to Mineral Materials could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 60% of the area open to Mineral Materials development (approximately 349,661 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 564,900 acres would be open to Locatable Minerals claims, with approximately 48,900 acres subject to discretionary and nondiscretionary closure. Areas open to Locatable Minerals could experience greater soil erosion, but soils resources within closed areas would be indirectly protected. About 61% of the area open to Mineral Materials development (approximately 345,389 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

Impacts from Recreation Direction: Lands would be managed for a variety of nonmotorized, mechanized, and motorized recreation with an equal emphasis on all activities. OHV opportunities would be preserved. This mixed emphasis and maintenance of OHV access could result in fewer impacts on soils resources, including erosion and compaction, than in Alternative

D but more than in Alternative C. In Alternative B, approximately 12,700 acres would be closed to all vehicles, no acreage would be open to all vehicles, and approximately 601,100 acres would limit all vehicles to designated routes. Plans would be developed for the Blackfoot River SRMA, the Pocatello SRMA, and the Oneida Narrows SRMA. These plans would provide resource protection for these areas, while allowing for recreational opportunities. Comprehensive travel management plans would be developed in Alternative B that would consider criteria such as soil stability and highly erodible soils. Incorporating these criteria into travel management plans would help minimize impacts on soils resources from recreation.

Total SRMA designations for the Pocatello SRMA, the Blackfoot SRMA, and the Oneida Narrows SRMA would be approximately 58,800 acres, a 1% increase over Alternative A. While these SRMAs would concentrate public use, about 555,000 acres would be available as an ERMA, which could result in impacts on soils resources, depending on the type and intensity of use. This would be about a 1% decrease compared to Alternative A.

Impacts from Special Designations Direction: There are approximately 11,200 acres designated as WSAs, approximately 9,900 acres of ACECs, and approximately 1,900 acres as RNAs. In Alternative B, the 400 acre Petticoat Peak RNA would be designated. In this alternative, approximately 23,000 acres would be protected by special designations, which, depending on management guidelines for each designation, may indirectly protect soils resources within each designation. In particular, creating the Petticoat Peak RNA may indirectly impact soils resources by limiting activities that indirectly cause surface disturbance and erosion. Surface-disturbing activities during fire suppression would be minimized; and the area would be managed for a naturally evolving plant community, which would stabilize and protect soils.

4.2.3.6 Alternative C

Impacts from Vegetation Direction: The goal of vegetation management actions in Alternative C would be similar to Alternative B. However, actions to maximize the health of vegetation by improving the distribution of LHC classes in favor of LHC-A would emphasize fire suppression and pre- and post-fire treatment methods in Source Habitats for greater sage-grouse. Source Habitats occur in the vegetation types that comprise the Shrub Steppe community (Low- and Mid-Elevation Shrub and Mountain Shrub). Vegetation treatments would also de-emphasize human intervention, where possible, which would indirectly impact soils resources in the long term. vegetation treatments in all vegetation types would increase 21 times over that of Alternative A, but would also be about half of Alternative B and one-third of Alternative D (**Table 4.2.3-2**).

Prescribed fire would be used, which could increase erosion and changes in infiltration rates from wildland fire and compaction and erosion from fire suppression activities. However, BMPs would be incorporated during surface-disturbing activities to minimize impacts. Compared to Alternatives B and C, fewer mechanical treatments would be done, which would reduce short-term surface disturbance impacts. However, the desired distribution of LHC classes would be met more slowly, thus increasing the time before maximum vegetation health and indirect maximum soil protection is reached.

While wildland fire would be allowed to occur in all vegetation types, fire suppression would be more limited in the naturally-occurring Juniper, and the forested Aspen/Aspen Conifer Mix/Dry

Conifer and Wet/Cold Conifer types. Treatments in the forested types would also rely on pre- and post-fire mechanical methods, such as selective thinning and logging. Equipment used to harvest trees would cause short-term impacts on soils resources where logging roads for access is required. Expected impacts would be increased soil compaction and erosion. Areas where trees are harvested would be temporarily exposed, which could contribute to further erosion and run-off until vegetation is reestablished.

Over the long term, soil stability would largely be maintained and improved in the Shrub Steppe (Low- and Mid-Elevation Shrub and Mountain Shrub). Over the long term, Shrub Steppe vegetation in Alternative C would generally move toward LHC-A and could be expected to also lead to healthier and more stable soil conditions (see **Table 4.2.5-1**, in Section 4.2.5, Vegetation). About 1% of the vegetation treatments would be concentrated in the highly vulnerable Low-Elevation Shrub type compared to no treatments in Alternative A, about 46% in Alternative C, and 4% in Alternative D.

Overall, Alternative C would be comparable to Alternative B. It would provide improved soil conditions in the Low-Elevation Shrub, Mountain Shrub, and Aspen/Aspen Conifer Mix/Dry Conifer types where vegetation treatments would meet desired LHC for LHC-A. Soil conditions would not likely improve to the same degree in the Mid-Elevation Shrub, naturally occurring Juniper, and Wet/Cold Conifer types, where desired LHC-A would not be met.

Impacts from Special Status Species Direction: This alternative would involve the greatest degree of conservation measures, including protective and restorative measures. More proactive measures would be taken in this alternative. More acres would be protected through restrictions on surface-disturbing and development activities. More buffer zones would be in place around important habitat (e.g., breeding grounds and plant populations), resulting in more indirect protection for soils resources.

Impacts from Wildland Fire Management Direction: The impacts from treatment activities would be greater than in Alternative A, but less than in Alternatives B and D. About 54,920 acres would be treated over the next 10 years by various treatment methods (wildland fire, prescribed fire, mechanical treatments), which could cause surface disturbances resulting in increased soil compaction and erosion compared to Alternative A. Such treatments would cause surface-disturbance loss of vegetation resulting in increased soil compaction and erosion and possible alterations to physical soil properties and altered infiltration rates.

Impacts from Lands and Realty Direction: Areas would be designated as open, avoidance, exclusion, and restricted to LUA where uses are incompatible or conflict with sensitive resources management.

Similar to Alternative B, approximately 76,100 acres would be subject to withdrawal in Alternative C. Withdrawals would be finalized for eight RNAs (approximately 1,900 acres) and the Soda Springs Hills Management Area (approximately 15,000 acres), which, depending on management guidelines for each designation, may indirectly protect soils resources within those designations.

Impacts from Minerals and Energy Direction: About 602,600 acres would be open to Fluid Minerals. Approximately 347,300 acres would have an NSO stipulation, and approximately

11,200 acres would be subject to nondiscretionary closure, which would prevent surface disturbance and erosion. About 25% of the area open to Fluid Minerals development (approximately 153,104 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 582,400 acres would be open to Solid Leasable Minerals, with approximately 31,400 acres subject to discretionary and nondiscretionary closure. Areas open to Solid Leasable Minerals could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 60% of the area open to Solid Leasable Minerals (e.g., phosphate) development (approximately 349,661 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 544,800 acres would be open to Mineral Materials development, with approximately 69,000 acres subject to discretionary and nondiscretionary closure. Areas open to Mineral Materials could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 59% of the area open to Mineral Materials development (approximately 321,264 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 564,900 acres would be open to Locatable Minerals claims, with approximately 48,900 acres subject to discretionary and nondiscretionary closure. Areas open to Locatable Minerals could experience greater soil erosion, but soils resources within closed areas would be indirectly protected. About 61% of the area open to Locatable Materials claims (approximately 345,389 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

Impacts from Recreation Direction: Lands would be managed for a variety of nonmotorized, mechanized, and motorized recreation, with an emphasis on nonmotorized activities. OHV opportunities would be controlled, and nonmotorized opportunities would be expanded. This emphasis and an increase in nonmotorized activities and control of OHV activities could result in fewer impacts on soils resources, including erosion and soil compaction, than in Alternatives A and D. In Alternative C, approximately 12,700 acres would be closed to all vehicles, no acreages would be open to all vehicles, and approximately 601,100 acres would limit all vehicles to designated routes.

Plans would be developed for the Blackfoot River SRMA, the Pocatello SRMA, the Oneida Narrows SRMA, and the Campground SRMA which would provide resource protection for these areas, while allowing for recreational opportunities.

Comprehensive travel management plans would be developed in Alternative C that would consider such criteria as soil stability and highly erodible soils. Incorporating these criteria into the travel management plans would help minimize impacts on soils resources from recreation.

Total SRMA designations for the Pocatello SRMA, the Blackfoot SRMA, the Oneida Narrows SRMA, and the Campground SRMA would be approximately 59,200 acres, a 1% increase over Alternative A. While these SRMAs would concentrate public use, about 554,600 acres would be available as an ERMA, which could result in impacts on soils resources, depending on the type and intensity of use. This would be about a 1% decrease compared to Alternative A.

Impacts from Special Designations Direction: There are 11,200 acres designated as WSAs, approximately 9,900 acres of ACEC designations, and approximately 1,900 acres of RNA

designations. In Alternative C, the 400 acre Petticoat Peak RNA would be designated. In particular, creating the Petticoat Peak RNA may indirectly impact soils resources by limiting activities that indirectly cause surface disturbance and erosion. Surface-disturbing activities during fire suppression would be minimized, and the area would be managed for a naturally evolving plant community, which would stabilize and protect soils.

4.2.3.7 Alternative D

Impacts from Vegetation Direction: Alternative D would only use fire suppression as necessary and use a combination of pre- and post-fire mechanical treatments and prescribed fire, which would result in more short-term surface disturbance and soil impacts. However, it would more quickly reach a long-term stability of vegetation resources through improved distribution of LHCs compared to the other alternatives, thus protecting soils resources.

Vegetation treatments would also emphasize human intervention, where possible, which would indirectly impact soils resources in the long term. Vegetation treatments in all vegetation types would increase 67 times over that of Alternative A, and would be 1.5 times greater than in Alternative B and more than 3 times greater than in Alternative C (**Table 4.2.3-2**).

The use of wildland and prescribed fire could result in soil changes, increased erosion, and change infiltration rates from wildland and prescribed fire and compaction and erosion from fire suppression activities. Harvesting activities would be emphasized, increasing impacts on soil, including decreased soil stability and increased soil compaction and erosion. However, BMPs would be incorporated during surface-disturbing activities to minimize impacts.

Overall, Alternative D would only achieve desired LHC-A in the Low-Elevation Shrub and Mountain Shrub types. LHC-A would not be achieved in the Mid-Elevation, naturally occurring Juniper, Aspen/Aspen Conifer Mix/Dry Conifer, and Wet/Cold Conifer types, which suggest that soil stability would be reduced, thus making soils more vulnerable to degradation and loss.

Impacts from Special Status Species Direction: Alternative D would provide a similar degree of indirect protection of soils resources as in Alternative A.

Impacts from Wildland Fire Management Direction: Impacts from treatments and WFU would occur to the greatest degree in this alternative. About 162,170 acres would be treated over the next 10 years by such treatment methods as prescribed fire and mechanical treatments, which would cause surface disturbance and the loss of vegetation, resulting in increased soil compaction and erosion. WFU over the next 10 years would increase the impacts associated with fire, including possibly altering physical soil properties, increasing erosion, and altering infiltration rates.

Impacts from Lands and Realty Direction: Areas would be designated as open, avoidance, exclusion, and restricted to LUA where uses are incompatible or in conflict with sensitive resource management. Similar to Alternative A, approximately 60,700 acres would be subject to withdrawal, including 7 RNAs, totaling approximately 1,500 acres that, depending on management guidelines for each designation, may indirectly protect soils resources.

Impacts from Minerals and Energy Direction: About 602,600 acres would be open to Fluid Minerals. Approximately 315,300 acres would have an NSO stipulation, and approximately

11,200 acres would be subject to nondiscretionary closure, which would prevent surface disturbance and erosion. About 29% of the area open to Fluid Minerals development (approximately 172,688 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 597,500 acres would be open to Solid Leasable Minerals, with approximately 16,300 acres subject to discretionary and nondiscretionary closure. Areas open to Solid Leasable Minerals could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 61% of the area open to Solid Leasable Minerals (e.g., phosphate) development (approximately 364,712 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

About 597,500 acres would be open to Mineral Materials development, with approximately 16,300 acres subject to discretionary and nondiscretionary closure. Areas open to Mineral Materials could experience greater soil erosion, but soils within closed areas would be indirectly protected. About 61% of the area open to Mineral Materials development (approximately 364,712 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**)

About 582,600 acres would be open to Locatable Minerals claims, with approximately 31,200 acres subject to discretionary and nondiscretionary closure. Areas open to Locatable Minerals could experience greater soil erosion, but soils resources within closed areas would be indirectly protected. About 62% of the area open to Locatable Materials claims (approximately 361,746 acres) would occur on either water- or wind-erodible soils (**Table 4.2.3-3**).

Impacts from Recreation Direction: Impacts from recreation in Alternative D would be the same as in Alternative B. Total SRMA designations in Alternative D would be the same as in Alternative A.

Impacts from Special Designations Direction: Similar to Alternative A, no additional areas would be added in Alternative D. In this alternative, approximately 22,600 acres would be protected by existing designations, which may indirectly protect the soils resources within each designation, and would be the same as in Alternative A.

4.2.3.8 Cumulative Impacts

Past and Current Actions: The primary past actions that affected soils were human-caused from surface-disturbing and disruptive actions including historic agricultural (dry land farming, grazing and ranching), forestry and minerals and energy activities, livestock grazing practices, and recreation. Wildland fires and fire suppression activities have also contributed significantly to the cumulative effects on LHC and the associated vegetation, Water, and soils resources.

These activities have also led to the erosion of soils by removing native vegetation, often without sufficient revegetation efforts, and have altered soil structure, productivity, and function by grading, excavation, removal, and compaction. Soil loss and movement resulting from the effects of these land management activities are the most notable impacts inside and outside of the planning area. Stabilization and revegetation efforts by land management agencies and some private individuals could help mitigate these cumulative impacts.

Past grazing practices and fire suppression, however, have been major contributors to current degraded soil and associated vegetation that occurs within the planning area. Short-term increases in current erosion and sedimentation would be expected as a result of wildland fire, fire suppression, and Emergency Stabilization and Rehabilitation (ES&R) and restoration of disturbed areas.

Seasonal wildland fires increase the risk of soil erosion by removing the organic surface material from the soil. Extremely hot fires have the potential to permanently alter the top layers of the soil, changing the soil structure, productivity, chemistry, and hazard of erosion. Within the cumulative effects area, soil impacts resulting from fire would vary by location, timing of the fire, soil and vegetation type, and post-fire environment.

Livestock grazing may affect soil by decreasing the vegetation cover, destroying the microbiotic crust, increasing compaction, and thereby increasing the surface erosion of soils. Specific, localized damage in riparian areas from compaction and vegetation removal by cattle can happen, allowing sediment to enter the waterway and contributing to the destruction of the stream banks. Disturbance of soils resources by livestock is also a factor in the introduction and spread of noxious and nonnative vegetation species at localized concentration areas such as near water troughs.

Long-term reduction in erosion and sedimentation is anticipated as natural successional processes move perennial overstory and near-surface root biomass of vegetation toward a greater distribution of LHC classes that favor LHC-A and reduce LHC-C.

Typical recreation in the cumulative effects area consists of hunting, fishing, and other outdoor activities. Generally, these activities have a lesser impact on soils resources than other uses due to their intermittent and seasonal nature. Potential cumulative effects are limited and would include compaction from vehicle travel.

Of all the land uses in the cumulative effects area that can affect soils, the most significant one is mining because the soils within the disturbed areas are physically removed and then replaced during reclamation activities. Most of the disturbed areas, and all of the proposed future mining, would result in topsoil salvage and reapplication during reclamation. Reclamation is conducted concurrently with mining so that the total disturbed area is larger than the actual not reclaimed area at any one time.

To date, 36 Mineral Materials leases have been closed by the BLM and 21 permits remain active, but operations have previously resulted in surface disturbance on approximately 276 acres. Of the currently active permits, surface disturbance occurs on approximately 150 acres; and about 57% of disturbed areas have been reclaimed. The 43% not reclaimed consist of residual pits, highwalls, and areas comprised of gravel and rock where no topsoil exists for revegetation. Much of the past and current disturbance has, however, occurred as a result of gravel operations, which occurs primarily in alluvial valleys and often near existing roads. The amount of long-term, cumulative soil disturbance from Mineral Materials to date has been minimal, as about 69% of the areas disturbed have been reclaimed.

Eleven Locatable Minerals permits have been closed by the BLM, but operations have previously resulted in surface disturbance on approximately 24 acres. About 8% of the areas disturbed have been reclaimed. Only one permit currently remains open, disturbing about 97

acres. About 20% of the disturbed area has been reclaimed. Areas not reclaimed are typically highwalls, pits, and rock quarries that cannot be revegetated.

Although no drilling has occurred during the past 15 years, about 51 oil and gas exploration wells have been drilled historically in the PFO with approximately 294 acres of associated surface disturbance. Most of the disturbance has been reclaimed naturally, or as part of the operations. There are currently four active Fluid Mineral leases within the PFO, two oil and gas and two geothermal leases. However, no drilling plans have been submitted.

As of 2006, there have been 83 active Solid Leasable Minerals leases on Forest Service, BLM, tribal, Sate of Idaho and private lands, which has disturbed about 15,000 acres. About 475 acres of this disturbance has occurred on public lands managed by the BLM. About 50% of these lands have also been reclaimed. Considering all surface owners, about 50% of all land has been reclaimed.

The concentration of selenium and other metals in surficial growth medium and vegetation at reclaimed phosphate mining sites can be influenced by the mining operations. Selenium contamination from phosphate mining, a Solid Leasable Mineral, has affected about 1,300 acres of public lands managed by the BLM in the planning area. The type of reclamation treatment methods would affect the selenium concentration in the growth medium materials and vegetation. Previously, reclamation techniques at phosphate mines included the use of middle waste shales as growth medium. This was an accepted practice prior to the discovery in the late 1990s that selenium and other constituents of particular concern (COPCs) in the shale presented environmental risks. These past reclamation practices resulted in elevated concentrations of selenium and other COPCs in the seedbed, and reclamation vegetation rooted in this material was also likely to have elevated concentrations of some of these elements (BLM and Forest Service 2005).

The reclamation practices have changed. Previously, topsoil was not salvaged during the earliest disturbances, and reclamation was accomplished by regrading overburden, covering with weathered overburden shale, and revegetating. These areas now have some high selenium concentrations in the growth medium. In later permitted operations, topsoil was salvaged and spread over reclaimed overburden in thicknesses ranging from 0 to over 3 feet. These areas have varying levels of selenium concentrations in the growth medium. Since about 1998, overburden has been segregated into low selenium chert, with chert being used to cover shale overburden. Salvaged topsoil has been spread over the chert. These areas have low selenium concentrations in the growth medium and subsoil layers comparable to most native soils. This reclamation practice has been used on the Smoky Canyon Mine. Based on the above, it is expected that the current and future mining activities would preserve the salvaged topsoil and apply it on top of a low selenium chert cap to minimize selenium concentrations in the root zone.

Future Actions: The BLM estimates that 34 Mineral Materials leases would remain open through 2025 with continued disturbance on approximately 333 acres. This disturbance would continue to occur from gravel operations, and would also continue to be concentrated in alluvial valleys near existing roads. The amount of soil disturbance from Mineral Materials would be minimal, as it is expected that approximately 100 acres would remain not reclaimed during the period from 2006 to 2025.

Eleven Locatable Minerals permits would remain open during the period from 2006 to 2025, disturbing approximately 105 acres. Estimates suggest that only approximately 23 acres would remain unclaimed.

Fluid Minerals leases are projected to occur on approximately 314 acres on BLM-administered lands and no acres would remain not reclaimed during the period from 2006 to 2025.

Disturbance from Solid Leasable Minerals leases are projected to occur on approximately 5,252 acres of federal, state, and private lands within the cumulative effects area during the period from 2006 to 2025. Of these, impacts from associated Fluid Minerals development activities on BLM lands would occur on approximately 479 acres (9%). Considering all surface owners, reclamation would occur on approximately 94% of the impacted lands. Lands not reclaimed consist of rock highwalls and residual pits. Reclamation on BLM lands would be consistent with this projection.

As of 2006, there have been 83 active Solid Leasable Minerals leases on Forest Service, BLM, tribal, State of Idaho, and private lands, which has disturbed about 15,000 acres. About 475 acres of this disturbance has occurred on public lands managed by the BLM. About 50% of these lands have also been reclaimed. Considering all surface owners, about 50% of all lands have been reclaimed. Many of the lands remaining unreclaimed in the 50% figure are active operations where reclamation has not begun but is required to occur. Impacts resulting from minerals and energy development could result in inadvertent chemical spills and selenium contamination from phosphate mining. Such impacts would be reduced by applicable regulatory programs (Chapter 2) and corresponding implementation of erosion control measures, spill prevention and countermeasures, storm water pollution prevention plans, and reclamation and site restoration activities. Additional soils resources exposed to chemical treatments that could impact important bacterial and microbial features important to soil generation and productivity. Implementation of the most currently available BMPs, *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a), and *Surface Operating Standards and Guidelines for Oil and Gas Development* (Gold Book) would reduce impacts.

Cumulative impacts from all alternatives would involve short-term increases of erosion and sedimentation, with accompanying reduction in soil productivity when the activities are initially undertaken. Vegetation treatments in Alternatives B, C, and D would, in time, result in the reduction of erosion and sedimentation. Similarly, soil productivity would increase over the long-term as a result of vegetation treatments that shift LHCs to a greater percentage in LHC-A. Impacts from interrelated project development would result in some permanent removal or alteration of soils resources in specific, localized areas. Implementation of BMPs and mitigation measures would reduce the degree of overall erosion and sedimentation impacts. Soil productivity would be lost in the comparatively smaller areas affected by interrelated projects, but would improve widespread areas with successful vegetation management.

A slight shift or change in plant communities and productivity would occur in rehabilitation areas. Plant productivity would go down where there is little topsoil restoration, but may be enhanced if an additional thickness of topsoil is added to shallow sites. Plant communities could be influenced by the introduction of nonnative species.

Upon the restoration of sites, soils would have a reduced productivity level but overall,

cumulative impacts are anticipated to be small after mitigation measures are completed. It is expected that with matching management practices to meet the capability of the land and with appropriate mitigation measures to minimize impact, soil losses would be minimized.

If extensive groundwater contamination occurs, further impacts may affect soil moisture regimes in riparian/wetland areas.

The current reclamation technique planned to reduce the exposure of seleniferous overburden to the surface environment would be to place low selenium chert as a thick cover over all areas of seleniferous overburden fills and then apply a layer of salvaged topsoil. The thickness of this chert layer would be a minimum of 4 feet thick and thicker on the slopes where it is deemed necessary. The chert and topsoil would deter root penetration into underlying seleniferous overburden, thereby reducing bioaccumulation in reclamation vegetation. In this manner, the soil disturbance would not add to the area's existing areas of elevated selenium concentrations in the growth medium.

4.2.3.9 Tribal Treaty Rights and Interests

Actions proposed in all of the alternatives could affect public lands that are of tribal interest. Project-specific analysis would be completed before management activities begin to identify areas of concern and to consult with tribes regarding these interests. However, it is unlikely that such interests would affect the long-term objective to improve LHC in each of the soils and the associated vegetation types because the BLM consults with tribes on projects affecting treaty rights on public lands. The BLM would continue to solicit input from tribes on future projects, which would at least reduce, if not eliminate, the effect on soils resources. The presence of sensitive resources with tribal significance could, for example, affect the ability to treat degraded soils if such significant resources were to occur adjacent to or within proposed treatment and restoration areas.

4.2.4 PALEONTOLOGICAL RESOURCES

4.2.4.1 Summary

Although public lands include formations with paleontological potential, known or expected fossil locations are relatively discrete exposures of bedrock, weathered bedrock or unconsolidated alluvial deposits. No scientifically important vertebrate resources are known, and most fossils are common invertebrates or plants. A complete inventory and classification of outcrops, formations, and fossil locations is not available and much of the potential resource base would only be exposed through excavation.

Effects on known and unknown paleontological resources would most likely result from actions that include or permit large-scale ground disturbance or excavation. Realty actions could also remove or add land subject to federal protections for paleontological resources. To a lesser extent, effects on paleontological resources could occur from actions that open or close land to minor surface disturbances, allow potentially incompatible uses, and actions that could affect natural processes such as erosion.

Project planning, permitting and review would be conducted to determine paleontological sensitivity and to address impacts resulting from authorized activities and land tenure

adjustments. Permitted ground disturbance can lead to positive effects such as the discovery of scientifically important paleontological resources. In these cases, there would be requirements to stop work and allow the BLM to evaluate the discovery and take appropriate action to protect or remove the resource. Scientific research would also continue under BLM permits, leading to the discovery, recovery, and interpretation of paleontological resources. Some loss of resources could occur from direct disturbance when resources are not anticipated, or from wildland fire suppression, vandalism, and unauthorized collecting. Impacts on paleontological resources are not quantifiable, but the potential for impacts would be low and similar for all of the alternatives. **Table 4.2.4-1** compares current and proposed management actions and alternatives. The referenced impact indicators for paleontological resources are described in greater detail in Section 4.2.4.2.

Table 4.2.4-1. Comparison of Paleontological Resource Indicators by Alternative

Indicator	Alternative			
	A	B	C	D
Presence or potential for paleontological resources	No change	No change	No change	No change
The extent of change associated with the management alternatives and their potential to modify the risk of impacts on scientifically important paleontological resources	No change	No change	No change	No change
The acres and relative depth of ground-disturbing activities anticipated and their potential for affecting known or unknown, intact, scientifically important paleontological resources	No change	No change	No change	No change
Increased access or activity in areas where scientifically important paleontological resources are present or anticipated	No change	No change	No change	No change
Extent that the management action changes the potential for erosion or other natural process that could affect scientifically important paleontological resources	No change	No change	No change	No change

4.2.4.2 Methods of Analysis

Indicators. Management actions could result in impacts on paleontological resources if an alternative were to directly or indirectly damage, destroy, or allow the improper collection of scientifically important paleontological resources. These include fossils or assemblages of fossils that are unique, unusual, rare, uncommon, and diagnostically or stratigraphically important and those that add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (Reynolds 1988).

Indicators that are used to qualitatively assess management changes that could affect scientifically important paleontological resources include the following:

- The known presence or potential for scientifically important paleontological resources.

- The extent of change associated with the management alternatives and their potential to modify the risk of impacts on scientifically important paleontological resources.
- The acres and relative depth of ground-disturbing activities anticipated and their potential for affecting known or unknown, intact, scientifically important paleontological resources.
- Increased access or activity in areas where scientifically important paleontological resources are present or anticipated.
- The extent that the management action changes the potential for erosion or other natural process that could affect scientifically important paleontological resources.

Methods and Assumptions. Management of paleontological resources on public lands is primarily guided by FLPMA (43 US Code [USC] 1733). Pursuant to FLPMA, the BLM has issued regulations that provide additional protection. Section 8365.1-5 of Title 43 of the CFR prohibits removing any scientific resource or natural object without authorization. There are exceptions to this prohibition for small quantities of common invertebrate fossils and petrified wood. Specific guidance is found in BLM Manual Section 8270 and Handbook 8270-1, Paleontological Resource Management. The BLM manages paleontological resources for their scientific, educational, and recreational values and to ensure that any impacts are mitigated.

When areas containing fossils are identified during the review of projects involving surface disturbance, LUAs, or title transfer, a formal analysis of existing data must be conducted to assess potential impacts on paleontological resources, and the need for a paleontological field survey would be based on findings resulting from the analysis. Consideration of impacts on paleontological resources includes an assessment of whether the project or action would result in the destruction or risk of destruction or unauthorized collection of fossils. Mitigation may be warranted where risks to vertebrate fossils, or noteworthy occurrences of invertebrate or plant fossils, are expected. Mitigation may be accomplished, for example, by collecting data and fossil material, by obtaining representative samples of the fossils, by avoiding areas where fossils are found, or, in some cases, by no action. In some cases, surface disturbance may expose fossils that could be excavated or interpreted for scientific study or public education.

The following assumptions regarding the resource base and management practices were considered in the analysis:

- Only portions of the planning area have been formally inventoried for paleontological resources. There are known fossil-bearing geologic formations and exposures, and there is some potential for paleontological resource occurrence in other discrete locations in the planning area, based on existing geological reports. These resources have not been formally classified or ranked according to their potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. There is no predictive modeling or sensitivity mapping available to estimate resource density. There are no scientifically important vertebrate fossils known to exist on BLM-managed public land at the present time.
- The greatest potential for impacts or discovery of unknown resources would result from actions that include direct, large-scale disturbance of bedrock, weathered bedrock, or

unconsolidated alluvial deposits. These include Mineral and Energy development and other land-disturbing activities.

- Vandalism and unauthorized collecting can destroy important fossils or remove them from their context and availability for scientific study and public interpretation. Small quantities of common fossils may be removed without permit for non-commercial use. Vandalism and unauthorized collecting are not currently a problem in the planning area.
- To a lesser extent, exposed fossils or scientifically important paleontological resources can be damaged by wind and water erosion, animal and human intrusion, natural deterioration, and other, minor, land-disturbing activities.
- There is no separate project review process for effects on paleontological resources, but impacts are addressed under FLPMA and NEPA, other federal regulations, and BLM orders. When areas containing fossils are identified, existing data is analyzed; and it is determined whether a field survey is warranted. Impacts are assessed and mitigation measures are proposed, if needed. The requirement to report new discoveries is included in authorizations for actions that have the potential to impact paleontological resources.
- Scientific, commercial, and popular interest in fossils and paleontological resources is expected to continue or increase.

In all alternatives, Paleontological Resources direction would not be affected by Air Quality, Fish and Wildlife and Visual Resources; so these resources are not further addressed under this section.

4.2.4.3 Impacts Common to All Alternatives

Impacts from Cultural Resources Direction: There would be no change in Cultural Resource management direction under any of the alternatives. Actions to identify cultural resources through an intensive pedestrian survey could lead to the discovery and recording of paleontological resources. Actions to protect cultural resources that restrict surface-disturbing activities, incompatible land uses, or access would reduce the potential for these activities to damage paleontological resources that are not inventoried. There would be long-term effects on paleontological resources resulting from the awareness and enforcement of cultural resource protection measures.

Impacts from Soils Direction: Measures under all of the alternatives to limit soil erosion and ground-disturbing activities could indirectly impact the preservation of fossils, if present, by reducing exposure and direct impacts.

Impacts from Paleontological Resources Direction: There would be no change in Paleontological Resources management under any of the alternatives. Ongoing and planned management measures would include identifying areas where resources may be present, determining whether a field inventory is needed, identifying resource conflicts, avoiding and mitigating impacts, adhering to requirements to report discoveries, and enforcing permit requirements for scientific and commercial uses. Impacts would be avoided in the long term through these management measures, which are designed to identify and protect scientifically important resources in planning and project activities.

Impacts from Vegetation, Special Status Species, Water Resources, Forestry, and Livestock Grazing Direction: Ground-disturbing activities associated with these proposed management actions could damage or dislocate paleontological resources that were not discovered prior to surface disturbance. Although possible, the expected depth and intensity of ground disturbance would not be likely to affect paleontological resources in most cases. Fossils are often found in bedrock or exposed bedrock where these actions would not be undertaken. The location and depth of fossils found in alluvium are less predictable, and fossils that are bone are more easily damaged. The presence and potential for impact on scientifically important paleontological resources would be addressed as part of the planning review for implementing these management actions.

Impacts from Wildland Fire Management Direction: Wildland fire suppression can involve ground-disturbing activities at depths that could directly affect paleontological resources. These actions include constructing fire lines, bulldozing access roads, and using heavy equipment. WFU can remove vegetation and expose previously undiscovered resources, allowing their study and protection, but locations exposed by fire can be susceptible to erosion, vandalism and unauthorized collecting. The expected depth, intensity and location of ground disturbance associated with WFU and other fuel treatments would not be likely to affect paleontological resources in most cases.

Stipulations for wildland fire management address a range of resource concerns associated with WFU, fire suppression, prescribed fire, nonfire treatments, and restoration activities. Although some paleontological resource locations are discrete and non-vegetated, it is not possible to anticipate all resources, and some impacts may occur. The alternatives would vary in the amount of WFU and other fuel treatments that are permitted or anticipated. Over the next 10 years, WFU would range from 0 acres in Alternative A to up to approximately 468,900 acres in Alternative D. Other fuel treatments would range from approximately 3,400 acres in Alternative A to approximately 162,170 acres under Alternative D. The risk of impacts would be similar under all of the alternatives.

Impacts from Lands and Realty Direction: It is not known whether any land containing scientifically important paleontological resources would be subject to withdrawals, new LUAs, land tenure adjustments and/or disposal. Resource values, including the potential for paleontological resources, are considered by the BLM when reviewing lands and realty actions. The BLM would conduct further impact analysis and possible mitigation for specific implementation actions. If lands are acquired that include paleontological resources, these resources would be provided federal protections in the long term. If paleontological resources are included in land proposed for disposal, there would be a potential for loss of the federal protection. Land tenure adjustment could impact the current management of paleontological resources by consolidating holdings. If land tenure adjustments increase easy public access to scientifically important resources, there could be increased risk of vandalism or unauthorized collection.

Similar levels of ROW and other LUAs would be anticipated under all of the alternatives. All of the alternatives would seek to maintain the public land base, but vary in the amount of acres considered for disposal and land tenure adjustments. Disposal under each alternative would range from approximately 24,950 acres in Alternative C, to approximately 60,700 acres in Alternative D. Lands considered for land tenure adjustments through sale or exchange would

range from approximately 32,200 acres in Alternative A to approximately 544,600 acres in Alternative D.

Impacts from Minerals and Energy and RFDS of Fluid Minerals Direction: Anticipated levels of minerals and energy development and resulting land disturbance are similar under all of the alternatives. Minerals and energy development includes planning review and stipulations to protect resources. Effects on paleontological resources associated with minerals and energy development can occur from actions such as mining involving direct large-scale disturbance of bedrock, weathered bedrock, or unconsolidated alluvial deposits. Minerals and energy development may expose new outcrops or fossil locations that may be made available for study or public education and interpretation. Fossils that may be exposed typically are common invertebrates. Mineral Materials development in alluvial areas may expose vertebrates, most likely disarticulated Pleistocene or Tertiary mammals, on occasion. Permits to remove Mineral Materials typically include approval conditions that require consultation with BLM and possibly cessation of activities if vertebrate paleontological resources are uncovered. Mineral and Energy development is also associated with other forms of ground disturbance at depths that would not be likely to affect paleontological resources and with vehicular access that could lead to vandalism and unauthorized collecting. The potential for impacts would be similar and low for all alternatives and would be addressed through planning and permitting stipulations.

Impacts from Recreation Direction: The expected depth and intensity of ground disturbance, soil compaction, altered surface water drainage, and erosion associated with dispersed recreation and OHV use would not be expected to affect paleontological resources in most cases. However, OHV use can provide easy access to paleontological resources, leading to vandalism and unauthorized collecting. Although this is not currently a problem in the planning area, the potential for these kinds of impacts would increase as population and recreational use increases. Route designations and increased acreage closed to OHV use would be proposed under Alternatives B, C, and D. These actions could help protect paleontological resources that are located off the travel routes, but enforcing travel routes would be difficult.

Impacts from Special Designations Direction: Special designations that would restrict ground disturbance would indirectly provide protection for any paleontological resources that may be present. However, special designations are not anticipated to affect the anticipated acres of direct disturbance associated with activities such as mining that would be most likely to affect paleontological resources. The potential for impacts would be similar and low for all alternatives and would be addressed through planning and permitting stipulations.

4.2.4.4 Cumulative Impacts

Cumulative impacts on paleontological resources includes consideration of the proposed alternatives in the context of past, present, and reasonably foreseeable actions within the planning area, including BLM, Forest Service, Tribal and BIA, State of Idaho and private land. Actions with the most potential to impact paleontological resources include minerals and energy development, fire suppression, urban development, vandalism, and unauthorized collection of paleontological sites.

Past, Current and Future Actions. Allowing land uses at past levels and levels presented in the plan would result in continued but small destruction of paleontological resources. It is anticipated

that the vast majority of these impacts would only affect common invertebrate or plant fossils. Scientifically important fossil locations may occur regionally. Depending on land ownership, these resources may be subject to federal protections. Since the PFO manages the Forest Service and the Tribal mineral estate, mineral development would be subject to review and investigations prior to any approval given to surface disturbing activities proposed on lands that may have important paleontological resources. Mining activities can destroy buried and unidentified fossils but can also uncover paleontological resources and information that would otherwise not be uncovered, thereby increasing scientific understanding. Suitable mitigation measures would be developed and applied in accordance with site specific conditions.

Damage to paleontological resources can also occur from fire suppression and vandalism. With the trend of increased WFU, greater care can be taken in planning and constructing firebreaks to avoid resource impacts. Vandalism and unauthorized collection may increase with population increases and urban development. Management measures under the RMP are not expected to result in cumulative impacts when combined with impacts from past, present, and future actions in the region.

4.2.4.5 Tribal Treaty Rights and Interests

It is not known whether the paleontological resources in the planning area are important to the tribes. As participants in the RMP and other planning processes and in government-to-government consultations, the tribes have the opportunity to address any concerns or issues related to the management of paleontological resources or any future implementation actions.

4.2.5 VEGETATION

4.2.5.1 Summary

This section presents the impacts on vegetation resources under each of the four alternatives for vegetation management in the planning area. The following is a summary of the alternative treatment strategies and analysis results.

In Alternative A, treatment footprint acres (approximately 3,400 acres in Aspen/Aspen Conifer Mix/Dry Conifer types) would be at lower levels than under Alternatives B (approximately 124,300 acres), C (approximately 54,900 acres), and D (approximately 162,200 acres). Since footprint treatment acres for Alternatives B, C, and D would be 16 to 48 times greater than for Alternative A and all vegetation types would be treated for LHC improvement, Alternative A would result in more uncharacteristic vegetation (e.g., cheatgrass) on the landscape than other Alternatives. In all but Mountain Shrub vegetation type, other Alternatives would result in more improvement in LHC than Alternative A. Compared to the other alternatives, Alternative A would provide fewest opportunities for long-term restoration of the vegetation types of the Shrub Steppe as juniper encroachment and uncharacteristic vegetation acres would increase across the landscape (**Appendix J – Section I**).

In the forested vegetation types, vegetation treatments would not be extensive enough to improve LHC. In Alternative A, less than 10% of the total acres would be treated compared to 30-40% under other Alternatives (**Table 4.2.5-2**). Vegetation management in the forested vegetation types under Alternative A would generally emphasize maintaining or increasing the aspen

component in the currently mixed Aspen/Conifer stands. In conifer dominated stands, Alternative A would focus on thinning trees to improve stand vigor.

Vegetation management strategies under Alternative A would encourage full suppression (initial attack) as the AMR in all vegetation types. Also, it would designate no areas as suitable for WFU in order to limit wildland fire acres burned in all vegetation types. In vegetation types where wildland fire's presence is less frequent than desired (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer) management direction proposed under Alternative A would increase fire frequency/severity departure from historic decreasing LHC. In vegetation types where wildland fire's presence is more frequent than desired (Low-Elevation Shrub), Alternative A would improve or maintain fire frequency/severity departure, generally improving LHC.

In Alternative B, treatment footprint acres (124,300 acres) would be greater than Alternative A (3,400 acres) and C (54,900 acres) but less than Alternative D (approximately 162,200 acres). Footprint treatment acres proposed under Alternatives B are designed to mimic historic vegetation/fuel conditions by treating uncharacteristic vegetation and increasing those successional classes that are currently scarce on the landscape in all vegetation types. In the sagebrush steppe vegetation types, Alternative B emphasizes eliminating uncharacteristic and nonnative vegetation (e.g., crested wheat seedings) and increasing shrub cover, particularly in Low-Elevation Shrub where mid- and late-successional acres are scarce.

In forested types, Alternative B emphasizes increasing the aspen component by decreasing the conifer component in Aspen/Conifer and Dry Conifer vegetation types. Compared to Alternative A, Alternative B would improve vegetation conditions (wildland fire/fuel loading) by increasing the level of disturbance in vegetation types that historically burned frequently (Mid-Elevation Shrub, including juniper encroachment, Mountain Shrub, and Aspen/Aspen Conifer Mix/Dry Conifer types).

Vegetation management strategies under Alternative B would encourage full suppression (initial attack) as the AMR in Low-Elevation Shrub, and would encourage limited suppression (monitoring or confinement) as the AMR in Mid-Elevation Shrub, perennial grass seedings, Mountain Shrub and Aspen/Conifer vegetation types. Alternative B would designate approximately 265,000 acres as suitable for WFU to restore fire's natural role in vegetation types that historically burned more frequently. Overall, management direction proposed under Alternative B would increase LHC by improving vegetation-fuel condition and decreasing fire frequency/severity departure in all vegetation types.

In Alternative C, treatment footprint acres (54,900 acres) would be greater than Alternative A (3,400 acres) but less than Alternative B (124,900 acres) and Alternative D (162,200 acres). Footprint treatment acres proposed under Alternative C are designed to protect sagebrush steppe by treating no acres in Low-Elevation Shrub. Alternative C treatments would focus on restoring Mid-Elevation and Mountain Shrub vegetation, creating more early successional vegetation dominated by native forbs and grasses in these types, where early successional classes are scarce. Alternative C also emphasizes minimizing the level of human management and intervention as vegetation would be treated on only 7% of the Shrub Steppe (34,600 acres). Compared to other Alternatives, treatments proposed under Alternative C would result in maintaining LHC in the Shrub Steppe vegetation types whereas other Alternatives would result in a greater improvement in LHC.

In forested types, Alternative C would aim to increase the aspen component in the areas currently dominated by conifers. Compared to other Alternatives, Alternative C would result in the most improvement in LHC in Aspen, Aspen/Conifer and Dry Conifer acres.

Vegetation management strategies under Alternative C would encourage full suppression (initial attack) as the AMR in Low- and Mid-Elevation vegetation types, with the exception of restoration habitat for greater sage-grouse where limited suppression (monitoring or confinement) would be emphasized to increase the grass, forb and shrub component and reduce juniper encroachment. The AMR in Aspen/Conifer, Wet/Cold Conifer and Mountain Shrub would also be limited suppression. Alternative C would designate approximately 212,000 acres as suitable for WFU generally limiting wildland fire acres in shrub steppe vegetation types. Management direction proposed under Alternative C would increase LHC by decreasing fire frequency/severity departure in Mountain Shrub, and Aspen/Conifer vegetation types, but would decrease LHC in Mid-Elevation Shrub where not enough treatments are proposed. LHC would be maintained in Low-Elevation Shrub where Alternative C would limit fire's role in areas that historically burned less frequently.

Alternative D proposes treating the most footprint treatment acres (162,000 acres) to maximize commodity production and increase economic opportunities. In the sagebrush steppe, 100% of the uncharacteristic vegetation would be treated aggressively to convert or restore these acres to native vegetation, and 100% of the juniper encroachment acres in Mid-Elevation Shrub would be treated improving LHC more than any other Alternative.

In forested vegetation types, Alternative D proposes thinning areas currently dominated by conifers to minimize insect/disease infestation and maximize merchantable timber production. Since the management strategy under Alternative D would further decrease the early successional/aspen component in the Aspen/Conifer types, Alternative D is the only Alternative that would result in a decrease in LHC in the long-term in Aspen, Aspen/Conifer and Dry Conifer acres. The shift in emphasis to production of goods and services in the forested types would negatively impact LHC in forested vegetation types.

Vegetation management strategies under Alternative D would encourage full suppression (initial attack) as the AMR in Low-Elevation Shrub and would encourage limited suppression (monitoring or confinement) as the AMR in all other vegetation types. Alternative D would designate approximately 469,000 acres as suitable for WFU and would emphasis limited suppression as the AMR to decrease wildland fire management suppression costs and increase suppression efficiencies. Alternative D would likely result in more wildland fire acres burned than other alternatives in vegetation types where fire historically burned more frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer vegetation types). Management direction proposed under Alternative D would increase LHC by decreasing fire frequency/severity departure in all vegetation types expect Aspen/Conifer.

The impact analysis that follows is organized by indicators and assumptions used for analysis, followed by a comparative analysis by alternative and a cumulative analysis and impacts on tribal treaty rights and interests. Each alternative analysis is further organized by discussing the vegetation types in the Shrub Steppe and forest/woodland vegetation types. Shrub Steppe vegetation types are Low-Elevation Shrub (including 42,100 acres of perennial grass/seedings), Mid-Elevation Shrub (including 11,300 acres of encroaching Juniper), and Mountain Shrub.

Forest vegetation types are areas mapped as Aspen, Aspen/Conifer Mix, Dry Conifer, Wet/Cold Conifer, and Natural Juniper. Wet/Cold Conifer, Mountain Shrub and Natural Juniper would be discussed in *Section 4.2.5.3, Impacts Common to All Alternatives* section, because analysis shows that results are similar given any alternative.

4.2.5.2 Methods of Analysis

Indicators. Effects on vegetation are described using the concept of LHC which is an indicator of vegetation-fuel condition changes anticipated over 10 and 30 years. In this analysis, LHC was analyzed at the stand level and overall for each vegetation type given the effects of different levels of treatments, disturbance and natural succession. In general, an overall LHC-A is desired for the vegetation type. A vegetation type is considered to meet LHC-A when vegetative successional classes are present at proportions that are similar (plus or minus 33%) to historic proportions. To meet an overall LHC-A, uncharacteristic vegetation (cheatgrass, invasive species/noxious weeds, nonnative seedings) must be limited to less than 33% of the landscape.

In general, at the stand level, successional classes that are scarce or similar to historic proportions and that are composed of native desired species are considered to meet LHC-A. Successional classes that are overrepresented on the landscape and mostly composed of native desired species are considered to meet LHC-B. Successional classes that are abundant (plus or minus 66% more than historic) or that are composed of uncharacteristic vegetation are considered to meet LHC-C. At the stand level, each vegetation type has a different desired condition for each alterative (**Table 4.2.5-1**) based on current proportions of vegetative successional class occurrence. Successional classes (i.e., early successional, mid-open, mid-closed, late) referred to in the following analysis are based on descriptions found in the Biophysical Setting (BpS) descriptions found in **Appendix J**. BpS descriptions, developed for use in LANDFIRE, applicable to the vegetation types in the PFO, were used to determine reference conditions, LHC, and vegetation and fire frequency/severity departure. Details of BpS descriptions used, analysis methodology, and further descriptions of successional classes can be found in **Appendix J**.

For the purposes of this analysis, LHC describes the presence or absence of ecological components necessary to maintain or improve a healthy ecosystem. In order to analyze and describe the impacts of, and differences between, the various alternative management actions for vegetation, fish and wildlife, special status species, wildland fire management, livestock grazing, and forestry, objectives for vegetation and wildland fire management in this planning effort have been based on the LHC concept. LHC classes (A, B, C) are defined by the presence or absence of the ecological components necessary for a properly functioning and healthy ecosystem (**Appendix J – Section III**).

Current LHC and desired conditions over 10- and 30-year intervals were analyzed by modeling the expected natural succession and changes that would occur in various vegetation classes resulting from various vegetation treatments (prescribed fire, WFU, seeding, chemical, mechanical, and biological control). Eight of the original 11 vegetation types discussed (Section 3.2.7, Vegetation, **Table 3.2.7-1**) were grouped into six major vegetation types to facilitate modeling **(Appendix J).** These six major vegetation types are as follows:

- Low-Elevation Shrub (includes Perennial Grass/Seeding acres);

- Mid-Elevation Shrub (includes Juniper encroachment acres);
- Mountain Shrub;
- Natural Juniper;
- Aspen/Conifer (includes areas mapped as Aspen, Aspen/Conifer Mix or Dry Conifer); and
- Wet/Cold Conifer.

The Low- and Mid-Elevation Shrub types, along with the Mountain Shrub are the principal vegetation types that compose the Shrub Steppe complex. The Aspen/Conifer, Wet/Cold Conifer, and Natural Juniper are classified as forest/woodland vegetation **(Appendix J – Section II).** Riparian and Other/Vegetated Lava types were not grouped or modeled due to the limited number of acres treated (about 200).

Tables 4.2.5-3, **4.2.5-4**, **4.2.5-5**, **4.2.5-8**, **4.2.5-9**, and **4.2.5-11** summarize the LHCs under current conditions and the resulting LHCs for each vegetation type and alternative following vegetation treatments over 30 years.

In all alternatives, vegetation direction would not be affected by air quality and visual resources, so these resources and resource uses are not further addressed under this section.

Table 4.2.5-1 compares current and proposed vegetation management actions and alternatives. The referenced impact indicators for vegetation are described in greater detail in Sections 4.2.5.3 (Impacts Common to Alternatives), 4.2.5.4 (Alternative A), 4.2.5.5 (Alternative B), 4.2.5.6 (Alternative C), and 4.2.5.7 (Alternative D). Cumulative impacts are described in Section 4.2.5.8.

Table 4.2.5-1. Comparison of Vegetation Indicators by Alternative

Indicator	LHC Class[1]	Current/ Desired Condition	Alternatives			
			A	B	C	D
Approximate acres of **Low-Elevation Shrub** in each LHC class at Year 30.	A	29,000	102,800	0.0	104,300	144,800
		Desired	NA	>86,900	>72,400	>94,100
	B	73,800	0.0	137,600	0.0	0.0
		Desired	NA	29,000-36,200	36,200-43,400	21,700-29,000
	C	42,000	42,000	7,200	40,500	0.0
		Desired	NA	<28,960	<36,200	<21,700
Vegetative-Fuel Condition Class		**2**	**1**	**1**	**1**	**1**
Approximate acres of **Mid-Elevation Shrub** in each LHC class[1] at Year 30.	A	73,800	52,500	58,200	49,700	63,900
		Desired	NA	>85,200	>71,000	92,300
	B	35,500	56,800	0.0	0.0	0.0
		Desired	NA	28,400-35,500	35,500-42,600	21,300- 28,400
	C	32,700	32,700	83,800	92,300	78,100
		Desired	NA	<28,400	<35,500	<21,300
Vegetative-Fuel Condition Class		**2**	**2**	**2**	**2**	**2**
Approximate acres of **Mountain**	A	187,100	187,100	187,100	187,100	187,100

Table 4.2.5-1. Comparison of Vegetation Indicators by Alternative

Indicator	LHC Class[1]	Current/ Desired Condition	Alternatives			
			A	B	C	D
Shrub in each LHC class[1] at Year 30.		Desired	NA	>112,300	>93,600	>121,600
	B	0.0	0.0	0.0	0.0	0.0
		Desired	NA	37,400-46,800	46,800 -56,100	28,100-37,400
	C	0.0	0.0	0.0	0.0	0.0
		Desired	NA	<37,400	<46,800	<28,100
Vegetative-Fuel Condition Class		**1**	**1**	**1**	**1**	**1**
Approximate acres of **Aspen/Aspen Conifer Mix/Dry Conifer** in each LHC class[1] at Year 30.	A	40,600	38,800	42,400	56,900	12,600
		Desired	NA	>12,200	>12,200	>10,100
	B	0.0	0.0	0.0	0.0	36,100
		Desired	NA	10,100 - 12,200	14,200-16,200	14,200-16,200
	C	49,700	51,500	47,900	33,400	41,500
		Desired	NA	<18,200	<14,200	<16,200
Vegetative-Fuel Condition Class		**2**	**2**	**2**	**2**	**2**
Approximate acres of **Wet/Cold Conifer** in each LHC class[1] at Year 30.	A	0.0	0.0	0.0	0.0	0.0
		Desired	NA	>35	>70	>70
	B	700	700	700	700	700
		Desired	NA	660 - 700	590 - 630	590 - 730
	C	0.0	0.0	0.0	0.0	0.0
		Desired	NA	< 35	<35	<35
Vegetative-Fuel Condition Class		**2**	**2**	**2**	**2**	**2**
Approximate acres dominated by juniper Due to juniper encroachment at Year 30			11,300	5,650	0.0	0.0
Miles of riparian in PFC at Year 10			36	36	36	36

[1]See **Appendix J** for detailed descriptions.
Bordered columns indicate alternatives that meet maximum stand level LHC conditions compared to other alternatives.

Methods and Assumptions. Assumptions regarding the vegetation/fuel conditions, changes in vegetation over time, and the analysis to determine short- and long-term effects on vegetation were conducted assuming the following:

- All treatments would occur in the first 10 years and no treatments would occur in years 11-30, but WFU, wildland fire, and ES&R would continue in years 11-30. Effects are described as short-term (up to 10 years) and long-term (11-30 years).
- Footprint treatment acres represent the physical acreage affected used to determine LHC in 10 years and 30 years (**Table 4.2.5-2**).

Table 4.2.5-2. Area Extent of Vegetation Treatments Occurring in Each Vegetation Type by Alternative During the First 10 Years of Plan Implementation

Vegetation Type	Approximate Footprint Acres[1]			
	A	B	C	D
Low-Elevation Shrub	0.0	18,950	0.0	9,500
Perennial Grass/Seedings[2]	0.0	50,200	1,300	53,300

Table 4.2.5-2. Area Extent of Vegetation Treatments Occurring in Each Vegetation Type by Alternative During the First 10 Years of Plan Implementation

Vegetation Type	Approximate Footprint Acres[1]			
	A	B	C	D
Mid-Elevation Shrub[3]	0.0	21,900	5,350	52,700
Juniper encroachment	0.0	3,500	11,300	11,300
Mountain Shrub	0.0	16,500	16,600	15,000
Juniper (natural only)	0.0	0.0	0.0	0.0
Aspen/Aspen Conifer Mix/Dry Conifer	3,400	13,200	20,000	20,000
Wet/Cold Conifer	0.0	0.0	70	70
Riparian	0.0	0.0	100	100
Other/Vegetated Lava	0.0	0.0	200	200
Rounded total	**3,400**	**124,300**	**54,900**	**162,200**

[1]Defines the maximum area where vegetation treatments could be used, though the actual number of acres where treatment would occur may be less.
[2]Perennial Grass includes areas of the Low-Elevation Shrub type that lack shrubs due to disturbance. Seedings include areas of Low-Elevation Shrub previously farmed and homesteaded and seeded to crested wheatgrass.
[3]Includes areas within the Mid-Elevation Shrub type with and without juniper encroachment.

- For each alternative, IDT input was used to determine which successional classes would be targeted for treatment and what successional class would result following treatment after 10 years and 30 years. Treatment assumptions are documented in **Appendix J.**
- LHC were determined assuming that Wildland Fire and ES&R would continue at similar rates to past 30 years (<3,700 acres per year) and would be common to all alternatives.
- LHC results assume uncharacteristic vegetation and areas (e.g., crested wheatgrass seedings, invasive and noxious species) would not be completely eradicated but would be restored to a level that they could be reasonably classified as a natural successional class.
- Vegetation types would be maintained with a mix of species composition, cover, and vegetation classes designed to meet the intent of each alternative.
- Juniper acreage was determined using current vegetation data derived from satellite imagery from early 1990s. Approximately 4% (25,700 acres) of the PFO is currently dominated by juniper, with at least 10% Canopy Cover. For the purpose of LHC analysis, it was assumed that 14,400 acres occur on sites that were historically dominated by juniper (referred to as Natural Juniper vegetation type). Approximately 11,300 acres of the juniper dominated areas occur within the Mid-Elevation Shrub vegetation type and are considered juniper encroachment.
- Invasive species/noxious weeds would be treated as part of the fire and nonfire vegetation treatments.
- Wildlife populations would remain relatively stable.
- Livestock type and stocking would remain relatively stable.
- Consolidation of public lands leads to efficiency in vegetation management, the degree to which depends on the number of acres consolidated.

- Recreational demand and use would continue to increase.
- Vegetation would generally improve as wildland fire returns to its natural role.
- Effects on vegetation were assessed using a combination of modeling (**Appendix J**) and other data sources, including satellite imagery, wildland fire history (31 years), previous land use plans (Pocatello Draft RMP and EIS 1987; Malad Management Framework Plan 1981), and current geographic information data about vegetation communities and other resources. Qualitative assessments were made using best professional judgment.

4.2.5.3 Impacts Common to All Alternatives

Impacts from Cultural and Paleontological Resources Direction: Management of cultural and paleontological resources would have only short-term impacts on vegetation, primarily in the Shrub Steppe, where excavations conducted for cultural and paleontological resources data recovery directly disturbs vegetation and conflicts with vegetation treatments. Management actions that would focus on avoiding and protecting cultural and paleontological sites, surface-disturbing activities on or near such sites would be limited. Avoiding a cultural or paleontological site would require adjusting a project location but would still allow vegetation to be removed. Excavations of cultural and paleontological resource sites would also alter the soil surface and would increase the opportunity for the establishment of invasive species/noxious weeds. To date, less than 7% (approximately 43,000 acres) of the BLM public lands has undergone either Class II archaeological or Class III cultural clearance surveys; a level 1 literature and record evaluation paleontological inventory was performed in 1985 and was limited to the former Pocatello Resource Area. Standard protection measures and required reclamation practices would mitigate any effects on vegetation to acceptable levels.

Impacts from Vegetation Direction:

Mountain Shrub

Treatments and natural succession, given any alternative, would result in the maintenance of desirable LHC class (LHC-A) remaining unchanged from current conditions over both the short and long term (**Table 4.2.5-3**). Natural successional changes that would occur under all Alternatives and treatments proposed under Alternatives B, C and D (8-9% of total Mountain Shrub vegetation type) would result in 100% of the Mountain Shrub type remaining in LHC-A. The Mountain Shrub type is the most resilient and ecologically diverse vegetation type in the planning area. With annual precipitation ranging from 16 to 20 inches, Mountain Shrub has limited susceptibility to wildland fire and could require limited fire suppression. Precipitation levels and general ecological stability (including diverse structure and native plant composition) also makes this type resilient to disturbance. Management in any alternative would generally maintain Mountain Shrub vegetation close to current ecological conditions over both the short and long term (**Table 4.2.5-3**) for all Alternatives.

Table 4.2.5-3. Mountain Shrub Land Health Condition for All Alternatives Following Vegetation Treatments and Natural Succession

		Land Health Condition Class		
		LHC-A	**LHC-B**	**LHC-C**
Alternative A	Current	100%	0.0%	0.0%
	10 yrs.	100%	0.0%	0.0%
	30 yrs.	100%	0.0%	0.0%
Alternative B	Desired	>60%	20-25%	<20%
	10 yrs.	100%	0.0%	0.0%
	30 yrs.	100%	0.0%	0.0%
Alternative C	Desired	>50%	25-30%	<25%
	10 yrs.	100%	0.0%	0.0%
	30 yrs.	100%	0.0%	0.0%
Alternative D	Desired	>65%	15-20%	<15%
	10 yrs.	100%	0.0%	0.0%
	30 yrs.	100%	0.0%	0.0%

Wet/Cold Conifer

The vegetation model (**Appendix J**) used in this analysis predicts that, given any alternative, LHCs would remain unchanged from current conditions, given no treatment under Alternatives A and B or minimal treatments under Alternatives C or D. The Wet/Cold Conifer vegetation types would remain overall in LHC-B (**Table 4.2.5-4**), dominated by late successional vegetation. Overall, in the short and long term, the Wet/Cold Conifer would be maintained in current LHC-B (moderately departed from historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. In the past 30 years, no fires have occurred in the Wet/Cold Conifer vegetation type in the PFO. At the stand level, the Wet/Cold Conifer type occurs exclusively in LHC-B (late successional) and the approximately 700 acres would remain exclusively in mature stands (200+ years) given limited fire occurrence.

Although this vegetation consists almost exclusively of larger and older trees, a more desirable stand condition for resource protection would be LHC-A (early/mid successional vegetation). None of the Alternatives would achieve a diversity of successional classes across the landscape creating younger, open conifer stands. Lack of early/mid successional vegetation across the landscape would limit the ability to recruit younger trees. Increased insect/disease outbreaks, decreased plant diversity/composition, and continuous patches with increased fuel loads would be the long-term consequence of maintaining a LHC-B.

Table 4.2.5-4. Wet/Cold Conifer Land Health Condition for All Alternatives Following Vegetation Treatments and Natural Succession

		Land Health Condition Class		
		LHC-A	**LHC-B**	**LHC-C**
Alternative A	Current	0.0%	100%	0.0%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative B	Desired	>5%	95-100%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative C	Desired	>10%	85-90%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative D	Desired	>10%	85-90%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%

The Wet/Cold Conifer type would continue to be susceptible to large-scale, high intensity wildland fires. Though infrequent, stand replacement wildland fires are characteristic for the Wet/Cold Conifer type, large-scale stand replacement fires may pose a risk to some resources (i.e., WUI, soils, watershed, limited wildlife habitat). Maintaining stands without a diversity of tree ages/successional classes increases the risk that an even-aged stand would become susceptible to large scale wildland fire and insects and disease.

Natural Juniper

With continued fire suppression being the primary management tool, post-fire treatments and natural succession would result in LHC class remaining unchanged from current conditions (**Table 4.2.5-5**) given any alternative. The Juniper type occurs exclusively in LHC-B, and the approximately 14,400 acres occurs exclusively as mature stands (300+ years) vegetation. This suggests that mature juniper is overabundant and those trees are largely older. A more varied distribution of ages and vegetation diversity would be desirable for juniper to occur in LHC-A. However, no vegetation treatments would be used to alter this distribution.

Table 4.2.5-5. Natural Juniper Land Health Condition for All Alternatives Following Vegetation Treatments and Natural Succession

		Land Health Condition Class		
		LHC-A	**LHC-B**	**LHC-C**
Alternative A	Current	0.0%	100%	0.0%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative B	Desired	>5%	95-100%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative C	Desired	>5%	95-100%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%
Alternative D	Desired	>5%	95-100%	<5%
	10 yrs.	0.0%	100%	0.0%
	30 yrs.	0.0%	100%	0.0%

ES&R would occur following unplanned wildland fires to establish vegetative cover and minimize soil erosion as quickly as possible. Wildland fires would be assessed to determine the need or extent of ES&R treatments. Such treatments would be initiated for areas meeting one or more criteria as identified in the Normal Fire Rehabilitation Plan (2005) for the PFO.

It is anticipated that wildland fires would occur at the same level and not change by alternatives. For the past 31 years, wildland fires annually have burned approximately 3,700 acres (**Table 4.2.5-6**). The major vegetation types burned included the Low- and Mid-Elevation Shrub types (**Table 4.2.5-6**), accounting for approximately 75% (2,900 acres) of all vegetation types. ES&R activities would primarily be focused in the Low- and Mid- Elevation Shrub types, with no to very little ES&R treatment in woodland/forested vegetation types.

Within these vegetation types, ES&R treatments would primarily be accomplished by mechanical means through seeding of desirable seed mixes to establish vegetative cover and minimize soil erosion. Seeding of species would be done by drilling directly or through aerial application. Some chemical treatment would be expected to control or reduce the likelihood of invasive species/noxious weeds from germinating. Additional impacts for ES&R treatments are described in the Normal Fire Rehabilitation Plan 2005.

ES&R following wildland fire would depend largely on seeding sagebrush, grasses, and forbs. Chemical and biological control treatments would potentially be needed to control annual grass species (i.e., bulbous bluegrass) and invasive species/noxious weeds while burned areas recover. Short-term effects of treatments would include the mortality of nontarget plants from herbicide use and seeding methods that cause soil surface disturbance. Further complicating ES&R following wildland fire is the limited success of treatments in the Low-Elevation Shrub type due to the xeric conditions under which this type occurs , the dependence on soil resource conditions for the density of grasses, forbs, and associated shrubs, and the amount of time since the last human and natural disturbances.

Table 4.2.5-6. Average Annual Acres Burned by Vegetation Type for the Period 1971 Through 2001

Vegetation Type	Acres Burned 1970-2001	Average Annual Acres Burned[1]	Percent Average Annual Acres Burned
Low-Elevation Shrub	3,995	130	3.51%
Perennial Grass/Seedings	66,274	2,140	57.84%
Mid-Elevation Shrub (includes encroached juniper 114 acres)	421	584	15.78%
Natural Juniper	1,141	106	2.86%
Mountain Shrub	6,854	630	17.03%
Aspen/Aspen Conifer Mix	14,548	10	0.27%
Dry Conifer	19,403	40	1.08%
Riparian	143	5	0.14%
Other	17	40	1.08%
Wet/Cold Conifer	1,184	0.0	0.00%
Acres Total	113,980	3,700	

[1]Annual average is based upon 31 years of fire history data (BLM 2004i).

Impacts from Fish and Wildlife Resources Direction: Management of fish and wildlife would have minimal impact on vegetation resources because most management treatments and prescriptions would be consistent with vegetation management objectives and prescriptions to improve the distribution of LHC classes. By maintaining and improving native and desirable nonnative species for fish and wildlife, vegetation conditions would move toward reducing habitat fragmentation and improving the connectivity between habitats and essential habitat components. Management treatments and prescriptions in important wildlife habitat, such as riparian areas and aspen stands, could include restoration of degraded areas, fencing, removing encroaching conifer, prescribed fire, and plowing aspen roots to release clones. Seasonal restrictions on activities implemented to protect big game and their habitat during critical seasons of the year would allow native vegetation to be maintained and improved.

Most wildlife grazing has little impact on vegetation because wildlife often move frequently. Minor effects on vegetation occur from wildlife trails, bedding areas, and other congregation areas. Areas where animals concentrate, such as winter range, would continue to be particularly vulnerable to infestations of invasive species/noxious weeds. Wildlife spreads invasive species/noxious weeds through feces and by plant materials that attach to fur and feathers. Wildlife concentration areas, where shrubs are heavily used for forage, could exhibit shifts from sagebrush, bitterbrush, and mountain mahogany to conifers, grasses, forbs, annuals, and occasionally bare ground. Extensive browsing of desirable shrubs in riparian habitat might affect the density, height, and vigor of willows, aspen, cottonwood, dogwood, and currant. The seasonal distribution, population, and grazing intensity of wildlife might change or delay vegetation treatments; vegetation recovery following a treatment might be slowed if wildlife use the area. In some cases, improvements in riparian vegetation through treatments may not be

successful where big game browsing continues in the absence of large carnivores (e.g., gray wolves) from the ecosystem.

Impacts from Soils and Water Resources: Soils management would not affect vegetation because BMPs to protect soil integrity would be implemented for other project activities, which would limit soil loss to less than five tons per acre per year and would protect the substrate necessary for vegetation over the long term.

Management actions aimed at maintaining or improving soil conditions and minimizing soil erosion would also maintain or improve the condition for vegetation. In order to ensure protection, management activities would require topsoil salvaging and restoration and would limit surface disturbance on sensitive or erosive soils.

Maintaining good soil condition would enhance the viability, vigor, and abundance of special status species plants and plant communities. Where accelerated erosion or other soil-disturbing activities occur, measures would be taken to reduce or prevent the loss of habitat.

Water Resources management activities would emphasize the protection of watersheds from forestry, livestock grazing, minerals and energy development, and recreation and, where necessary, would implement stream restoration that would improve vegetation and riparian proper functioning condition (PFC) over the long term. Effective watershed management would result in healthy and diverse vegetation communities while minimizing the potential establishment and spread of invasive species/noxious weeds. The restriction of surface disturbance by establishing 50- to 300-foot buffers from the top of both banks around wetland/riparian areas, perennial surface waters, identified floodplains, and ephemeral channels would further protect vegetation from disturbance. Projects would require compliance with federal and state water quality standards and watershed guidelines during construction of other program projects, which would reduce potential impacts and assist in achieving the desired plant and litter density and cover objectives. Developed water sources on uplands would be used to reduce impacts from livestock concentrations in wetland/riparian areas.

Impacts from Wildland Fire Management Direction: Fire has been instrumental in the development and maintenance of vegetation types over time, and the fire intervals and fire intensity under natural conditions have varied greatly among the different vegetation types. Response to wildland fire and the AMR applied would have direct and indirect effects on vegetation resources as wildland fire changes native vegetation composition, structure, and function over the long term, ultimately changing LHC at both the stand and vegetation type levels. Restoration and revegetation with desirable nonnative and native plant species to mimic natural vegetation type structure and ecological function would also reduce long-term soil loss, increase water retention, provide better quality and quantity of vegetation, and improve the distribution of LHC classes toward LHC-A. The effects of wildland fire are discussed further in Section 4.2.10, Wildland Fire Management.

Buffers, restrictions on the use of mechanical treatments (e.g., blading, except where there would be a risk to public and firefighter health and safety), and restoration in native undisturbed areas and riparian zones would protect and also promote the long-term stability of natural plant communities. Restoration and revegetation with desirable nonnative and native plant species to mimic natural plant community structure would directly affect vegetation by reducing long-term

soil loss and invasion by invasive species/noxious weeds that typically occur following wildland fire.

Fire suppression (e.g., dozer and hand lines) could impact vegetation by directly removing or degrading vegetation or fragmenting habitats. This potential is especially high for species that occupy barren habitats. Fuel breaks are often established in areas with sparse vegetation, and plants that occupy these areas are at greatest risk. Vehicles (used for fire suppression, restoration, and salvage logging activities) can transport weed seeds over large distances, and subsequently there is potential for the introduction and spread of invasive species in burned areas. Areas that are particularly susceptible to weed invasions would be directly impacted following wildland fire and include riparian areas, heavily traveled areas in wilderness (such as trails and riparian corridors), and xeric areas, where there is less than 12 inches of annual precipitation. Washing suppression equipment in designated areas would decrease the risk of spreading noxious weeds during suppression activities.

Xeric conditions and increased fire occurrence make the Low-Elevation Shrub type highly susceptible to increased weed invasion. Wildland fire may only top-kill weed species in an area, leaving weed seeds and deeply-rooted or rhizomatous invasive species/noxious weeds intact. For example, high priority species such as tamarisk, rush skeleton weed, and yellow star-thistle are easily top-killed, but germinating seeds can effectively outcompete native vegetation. Because early detection and eradication using chemical, mechanical, and biological control methods would be used to address invasive species/noxious weeds, the effect of wildland fire in the spread of invasive species/noxious weeds would be reduced.

Impacts from Forestry Direction: Forestry management to produce wood products and to protect fish and wildlife species would be managed to maintain and restore biodiversity (e.g., mechanical treatments and plantings, design of treatments to mimic natural patch size, shape, connectivity, species composition, and age-class diversity) and to reduce risks from uncharacteristic wildland fire, disease, insects, wildlife damage, and livestock grazing on forested vegetation communities. While silvicultural programs could potentially improve ecological health for vegetation resources, management would also result in direct and indirect, short-term and long-term impacts.

The patchy nature of the Aspen/Aspen Conifer Mix/Dry Conifer and Wet/Cold Conifer types resulting from some selective WFU and thinning treatments would protect and promote diverse tree ages and canopy structure. This would also provide diverse habitats for wildlife that prefer densely treed or open habitat, better resistant to the spread of insect and disease, and increased water yield where snow accumulates in canopy openings.

Forest management actions, including small timber sales, firewood gathering, Christmas tree cutting, and other permitted activities could directly affect vegetation by introducing or spreading invasive species/noxious weeds. The vehicles, equipment, animals, and operators' clothing could transport plant materials to or from the project site. With the application of proper forest management practices, the introduction and spread of invasive species/noxious weeds from small timber sales and thinning projects would be minimal. While management would incorporate BMPs, require reclamation, and limit surface disturbance on sensitive or erosive soils, tree thinning, timber harvesting, and other forest practices could also have direct impacts on vegetation by removing the tree canopy cover and herbaceous understory.

Tree thinning, timber harvesting, and other practices would also be used to improve forest health. Improvements resulting from thinning could include increased vigor and resiliency of the remaining trees and a more open tree canopy, which would increase herbaceous plant cover. Fuel reduction would also reduce the frequency and intensity of wildland fires. Harvesting commercial forestlands would increase herbaceous vegetation in the short term. The impacts of these actions on vegetation would result in fewer trees but would lower wildland fire potential because harvested areas could serve as buffer areas for wildland fires. To avoid impacts from tree thinning and timber harvest, management would need to consider stands on a landscape scale. In many cases, tree density may be higher in young stands than in mature stands. The presence of mature forest stands does not imply that such stands are decadent. Rather, there is variability in mature forest structure that is important to achieve desirable LHC.

Impacts due to road and skid trail construction that would be necessary to access and remove vegetation and any subsequent impacts on vegetation due to increasing soil erosion rates, and invasive species/noxious weed establishment would have short- and long-term impacts on vegetation cover, depending on the scale of the timber harvest and whether the roads and skid trails would be needed for future harvesting. If necessary, clear-cut areas, roads, and skid trails would be reclaimed to initially establish herbaceous vegetation for soil stabilization, followed by tree plantings. Roads would be revegetated within three to five years after closure.

Impacts from Lands and Realty Direction: Lands and Realty management actions (e.g., ROWs) result in surface disturbance, which increases the land susceptibility to weed invasion or the spread of existing weed patches. Land proposed for exchange or acquisition would be inventoried for invasive species/noxious weeds to ensure infestations would not be inherited. Timely reclamation of disturbed areas would diminish the probability of weed proliferation in these areas. Failure to comply with existing weed control stipulations would increase weed abundance and proliferation.

The installation of utility systems and related LUAs would result in short-term vegetation removal until the area has been reclaimed. Initially, native grasses and forbs would dominate reclaimed sites. Shrubs would return over a longer period. Long-term impacts would mostly be associated with the construction of access routes. Permanent losses of vegetation would occur as a result of road construction used to access permanent facilities. Increased erosion and decreased vegetation cover would occur from soil compaction and the channelization of surface runoff into ruts and road ditches. Areas below mid-slope roads become drier, which reduces plant productivity and can change species composition. Details about the effect of LUAs on vegetation would be analyzed in site-specific NEPA analyses.

Public land disposal, exchange, or acquisition could have long-term effects on LHC. A priority would be placed on exchanging and acquiring parcels for improving management, including wildlife and riparian habitat. Permanent losses to some vegetation types would occur where disposal occurs; however, long-term indirect effects would occur where exchanges or acquisitions result in increased acreage for other vegetation types. Such exchanges and acquisitions would consolidate public lands in targeted vegetation types. This would be consistent with the long-term objectives to improve LHC in favor of LHC-A by reducing the effects of habitat fragmentation to ensure good site productivity, properly functioning riparian and wetland areas and vegetation types composed of desired species, including native, Special Status, and desirable nonnative species.

Impacts from Livestock Grazing Direction: Impacts on vegetation resulting from livestock grazing management would include the direct removal of forage by livestock, which could alter the amount, condition, and vigor of vegetation in grazed areas. Impacts from livestock grazing to vegetation vary, depending on season of use, number of livestock, distribution of livestock, the kind (e.g., cattle, sheep, horses) and class (e.g., yearlings, cow-calf, steers) of livestock. Salting areas, watering areas, and bed grounds often have disturbed soils and a loss of plant cover, which usually results in localized areas being dominated by invasive plants. Long-term impacts would include trampling, soil compaction, and soil erosion. The intensity of these impacts often depends on localized conditions, terrain, distance to water, and mineral supplements, as well as the various impacts listed above. Implementation of the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) would apply across all alternatives to reduce or minimize direct and indirect impacts and to ensure good site productivity, properly functioning riparian and wetland areas, vegetation types composed of desired species, including native, Special Status, and desirable nonnative species consistent with LHC-A.

Structural range improvements (e.g., fences, pipelines, troughs, spring developments) would be constructed as needed to implement grazing strategies, which would allow grazing allotments to meet or move toward meeting rangeland health standards or the desired LHC. The types of projects would vary based on resource needs and priorities. All range improvements would result in minor and short-term disturbances to vegetation, including loss of vegetation cover and changes in plant composition and vigor adjacent to each project. The use of range improvements is intended to improve the control of livestock grazing.

Livestock grazing can also be used to manipulate and improve plant community composition. Grazing management strategies, such as rotation, deferment, rest from use, and the manipulation of season of use and grazing intensity (stocking rate) would be implemented to manage composition, cover, and the vigor of vegetation. These provide rest periods for plant growth and seed production to maintain plant vigor. The objective of these strategies is to maintain or reach rangeland standards for wetland/riparian areas and upland plant communities. The response of vegetation to these strategies would be monitored, and adjustments would be made accordingly to achieve the desired response and LHC. Fall and winter grazing reduces potential impacts on the nonwoody vegetation because plants are dormant and not using energy for growth and reproduction. Woody species are preferred by livestock in the fall, especially cattle, because of the higher nutritive value and increased palatability. Fall grazing may reduce the vigor and seedling establishment of woody species, such as aspen, willow, and antelope bitterbrush.

Livestock can transport seeds and plant materials of invasive species to other areas, where they are spread by the animal physically removing the seed or fruit or through the deposition of fecal matter. However, expansion and establishment of invasive species/noxious weeds due to livestock grazing would not depend solely on seasonality. Disturbed areas where animals concentrate would be particularly vulnerable to infestations of invasive species/noxious weeds. In addition, range improvements that disturb soil would provide opportunities for weeds and other invasive plant species. The overuse of native vegetation in areas where *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) has not yet been implemented might increase the susceptibility of an area to weed invasions.

Site-specific monitoring and evaluation strategies would be implemented to measure success and evaluate the need to make adjustments in permitted use. Any adjustments to permitted grazing use would require site specific NEPA analysis. In order to meet or make significant progress towards meeting rangeland health standards, a variety of adjustments to livestock grazing would be made, including reductions on livestock numbers, changes in season of use, and changes in kind or class of livestock. Nonstructural range improvements may be implemented, such as juniper chaining and removal of conifers. Structural range improvements, such as fences and water developments, may be used to either exclude livestock or encourage grazing in areas where livestock didn't graze previously. All of these management techniques would require monitoring and evaluation to determine if additional adjustments are necessary.

These actions would improve species composition, vigor, and cover in sagebrush steppe, forested vegetation, and wetland/riparian habitat.

Livestock grazing sometimes maintains or creates habitat for desirable plant species by creating disturbance areas or by reducing vegetation competition. However, livestock grazing could reduce the occurrence of some plants as a result of trampling or consumption.

Impacts from Minerals and Energy Direction: Minerals and energy development has the highest potential for direct and indirect short- and long-term impacts on vegetation resources in the immediate areas where development occurs. Fifty to a hundred Fluid Minerals leases may be issued over the next 20 years, with an associated actual surface disturbance of 314 acres, all or which would likely ultimately be revegetated in Caribou and Bear Lake Counties.

A large portion of public lands are open to consideration of Solid Mineral Leasing (phosphate) although this mineral occurs in mineable amounts primarily in the eastern portion of the PFO. It is likely that leases already exist on most of the BLM-managed mineral estate that would likely be impacted by phosphate mining activities over the next 20 years. Approximately 479 additional acres of public lands are anticipated to be impacted by exploration and mining, with 450 acres reclaimed for solid leasable minerals during the next 20 years. Considering all non-National Forest System lands where the BLM manages the mineral estate, approximately 1,896 acres of various vegetation types may be impacted by solid leasable mineral exploration and development activities (principally, if not exclusively phosphate mining), with 1,782 acres reclaimed during the next 20 years.

Based on the occurrence of sand, gravel, and stone deposits in the PFO, historical information and a projection of future interest in developing these Mineral Materials, it is anticipated that approximately 333 acres of public lands could be disturbed over the next 20 years. Areas amenable to reclamation, around 233 acres, would be revegetated. One hundred acres, consisting of gravelly or rocky areas and highwalls, would not be revegetated.

In the short term, Solid and Fluid Mineral reclamation involves a transition from the existing vegetation type to primarily a Seedings or Perennial Grass vegetation type. Unvegetated areas would typically be rocky, would lack soil, and would be devoid of vegetation. Over the long term, surrounding native vegetation types would tend to encroach and begin volunteer reestablishment at the reclaimed sites.

Prior to issuing any mining permit, applicants would be required to submit operation plans that include site-specific mitigation measures to minimize vegetation disturbance. The BLM would also conduct site-specific NEPA analyses to assess impacts and approve appropriate mitigation measures. Fluid Mineral permits would be subject to standard leasing terms and stipulations (**Appendix H**), which would require an evaluation of the extent of impacts on vegetation and a reclamation plan that describes the mitigation measures that would protect and restore areas during the life of the project.

In the short term, surface disturbance would directly remove soil and vegetation and would increase the potential for invasive species/noxious weeds. Following the initial short-term impacts associated with surface disturbance, direct long-term impacts would depend on the length of time required and difficulty to achieve successful reclamation of disturbed vegetation.

To ensure successful reclamation, mining operations would be required to submit reclamation plans for review and approval. Plans would need to meet the applicable *Idaho Standards for Rangeland Health and Guidelines for Livestock Management* (**Appendix A**) (BLM 1997a). Reclamation would be considered successful and complete where site stabilization achieves, at minimum, predevelopment site potential. The Idaho Standards require that site stabilization demonstrate proper hydrologic and nutrient cycling and energy flow. Establishment of healthy, productive, vigorous, and diverse native and desired nonnative vegetation, including wetlands and riparian areas, would also maintain desired LHCs. Rehabilitation of mine sites to meet Idaho Standards and LHCs would focus on restoring the amount and distribution of ground cover, including litter, reducing erosion and rilling, reestablishing soil crusts, improving water infiltration, reducing previous soil compaction, and decreasing conditions favorable to noxious weeds and invasive plant species.

Successful reclamation on southeast Idaho mine sites could occur in as few as 5-6 years if intensive reclamation practices were to be implemented, because mine operators are typically required to use intensive seeding and fertilization to initially rehabilitate and restore disturbed areas. Also, operators would normally be required to separate, salvage, and directly replace soils to ensure a suitably stable substrate is maintained to restore vegetation dynamics and ecological function. In some reclamation projects, irrigation may also be utilized.

Any invasive species/noxious weed invasions, notably annual grasses, would be most likely to occur in the Shrub Steppe, and those sites where domestic livestock graze would be particularly susceptible. However, at a minimum, livestock would not graze on reclaimed sites until reclamation objectives are achieved. Moreover, Fluid Mineral Leasing closures and NSO stipulations, reclamation, and other public lands protection and mitigation measures, particularly in the Shrub Steppe, would protect vegetation in both the short-term and long-term from potential irreparable damage and long-term ecological degradation. Impacts on vegetation would also be reduced, considering that the location and amount of extractable material in the planning area is largely limited, thereby, making most minerals and energy activities economically infeasible.

Minerals and energy management actions would result in the localized removal of vegetation to build well pads, roads, and other associated infrastructure. Mineral development would also fragment continuous vegetation communities, would change plant community structure and diversity, and would alter vegetation landscapes. Most minerals and energy impacts on

vegetation would also occur within the Shrub Steppe communities. Long-term impacts would mostly be associated with the location and design of roads. Increased erosion and decreased vegetation cover would occur from soil compaction and the channelization of surface runoff into ruts and road ditches. Areas below mid-slope roads could become drier, which would reduce plant productivity and could change species composition. Similar impacts would occur for Solid Leasable Minerals or common variety Mineral Materials. Stipulations contained within leases and permits, although they might differ among the mineral categories, would protect existing vegetative communities and ensure the reestablishment of new vegetation following completion of the mineral extraction and reclamation cycle.

Quarries and mines associated with Locatable Minerals and Mineral Materials, such as sand, gravel, and other aggregates, typically disturb vegetation during operation of the project. Open pits and highwalls are typically impractical to revegetate. Disturbances would result in the loss of vegetation cover, density, and composition changes. Reclamation would be necessary for reestablishing plants on these disturbed areas. When completed properly, reclamation could increase plant species diversity and lower the vegetation classes of the community by replacing shrubs with grasses and forbs. Native grasses and forbs would dominate reclaimed sites in the short term; shrubs would return over a longer period.

In addition, hazardous substances such as selenium from phosphate mining can be absorbed into plants and water resources and may have both direct and indirect long-term effects on wildlife and livestock, especially domestic sheep. Vegetation near phosphate mines is showing high concentrations of selenium and cadmium in some locations. The high concentrations are a result of mining for phosphate and exposing waste rock containing trace elements such as selenium and other contaminants to the atmosphere. Selenium and cadmium leached from the rock by rain and snow, migrates into soils and springs. Selenium can also bioaccumulate in vegetation. Trace amounts of selenium and cadmium can be found in almost all soils, surface waters, and plants, but phosphate mining also tends to release selenium, cadmium, and other trace metals. Areas where selenium bioaccumulates in vegetation would affect domestic livestock forage. If selenium and cadmium uptake is detected in vegetation (particularly in willows), these areas may need to be closed to livestock grazing. The effect on wildlife from the consumption of contaminated vegetation is, as yet, unknown.

Risks of selenium uptake to vegetation resources depend on the effectiveness of selenium control measures to lower the potential for root penetration into seleniferous overburden fills. Selenium control measures would be used to reduce the potential for this impact. One potential control measure would be a cap over the seleniferous overburden that would consist of several feet or more of hard chert or limestone material that would lie underneath 1-2 feet of topsoil. Chert and limestone formations are typically excavated and removed, along with other overburden to expose the phosphate ore. Much of the chert and limestone have been found to contain very low amounts of contaminants of concern. Separation of the vegetation roots from the seleniferous overburden by a thick cap would help prevent selenium uptake in vegetation.

Any plants with rooting depths that extend beyond the layer of chert could be exposed to the seleniferous overburden. However, species selected for revegetation would include a mix of grasses, forbs, and woody vegetation with an emphasis on native species and those with a low potential for selenium uptake (Mackowiak et al. 2004). In addition, the majority of the roots for these species would not extend much below the layer of topsoil or upper part of the chert cap and

thus would have minimal contact with the seleniferous overburden (Nobel 1991; Stone and Kalisz 1991; Canadell et al. 1996). As a result, the potential indirect impact of selenium accumulation in future tree and shrub communities growing on reclaimed areas would be minimal. If accumulation occurred, it would likely be small and very localized, with negligible effects over the long term. Selenium control measures (capping), operational standards contained in Chapter 2, and other mitigation measures that may be developed in project specific NEPA documents would be implemented under any minerals and energy activity to reduce long-term impacts.

Impacts from the Reasonably Foreseeable Development Scenarios of Fluid Minerals Direction: Impacts from the RFDS of Fluid Minerals, including oil, gas, and geothermal resources, are similar to those described above. The RFDS of leasable Fluid Minerals could have direct and indirect short-term and long-term impacts on vegetation resources, and result in a predicted, approximate 314 acres of surface-disturbing activities, some of which may occur within the Low-Elevation Shrub, Mid-Elevation Shrub, and Mountain Shrub vegetation types.

Surface-disturbing activities related to mineral exploration and development from exploratory and production wells would increase the direct removal and loss of soil and vegetation by blading and trampling due to cross-country travel. Such activities could also result in erosion, soil compaction, and increased invasive species/noxious weed invasions that would indirectly cause the loss of vegetation. Impacts from the construction of pipelines and roads could include soil erosion, soil compaction, and removal of vegetative cover by trampling, blading, and cross-country travel. These effects would be long term, but the impact on long-term LHC could be mitigated on disturbed areas when they are reclaimed and restored to exceed pre-project conditions. BMPs, management stipulations, resource protection measures and required reclamation activities could limit potential impacts and reduce the potential for vegetative cover loss from minerals and energy development authorized by the BLM. Furthermore, exploration and development actions would be subject to project-level NEPA analysis, which would inventory and assess site-specific impacts on vegetation.

Impacts from Recreation Direction: Recreation would result in both direct short- and long-term impacts on vegetation resources. Establishing SRMAs would not restrict or limit surface occupancy due to minerals and energy activities and OHV use. Management of the existing Pocatello SRMA for OHV use is an example of an SRMA where direct, localized impacts on vegetation resources could occur when motorized recreational opportunities are emphasized and concentrated. However, impacts on vegetation would not be limited to OHV use, as increases in the region's population and in visits to the planning area increase the demand on all public lands for various recreational uses. As more people travel, pursue leisure activities, hunt, and otherwise enjoy public lands, vegetation resources could be trampled from foot, stock (e.g., horses, llamas), pets, and bike and vehicle traffic. The potential risk to vegetation from trampling and invasive species/noxious weed expansion or introduction would be the increased spread of seeds and other plant materials that attach to vehicles, recreational equipment, shoes, clothing, stock, and pets and eventually germinate and outcompete native species over the long term. As recreation use increases, people from outside the area could also transport invasive species/noxious weeds, including new invasive species. Recreation activities that occur in undisturbed and remote areas could distribute weed seeds into weed-free areas.

Recreational activities, such as camping, hiking, and backpacking in the planning area could result in direct, localized vegetation disturbance from trampling. While this typically occurs in small and localized areas, the effect varies, depending on the sensitivity of the area affected. Activities that do not require a permit, such as camping outside developed campgrounds, might affect sensitive vegetation communities and habitats by disturbing soil, altering hydrological conditions that could cause erosion, increasing sediment load in riparian and wetland areas, and directly removing native species.

Roads and trails used by recreational vehicles and recreationists can act directly to fragment habitats. Habitat fragmentation has been shown to interfere with the long-term ecological dynamics of many vegetation types. When disturbances occur, fragmentation could reduce the ability of the area to support plant and animal populations by, for example, increasing soil compaction and direct removal of vegetation and by providing vectors for invasive species/noxious weeds to establish populations. Additional impacts of roads include alteration of local hydrologic conditions that could affect riparian and wetland functioning. This alteration could affect the suitability of certain vegetation habitats to support both terrestrial and aquatic species by increasing sediment delivery to streams and wetlands.

Long-term impacts resulting from increases in access and visitor use in SRMAs and ERMAs would be unlikely to occur because the BLM would control the type and level of use as necessary to ensure that vegetation and all resource values would not be degraded. Permitted recreational activities would not be authorized in known locations if the potential existed to adversely affect sensitive vegetation communities and habitats. Controlled recreational use in SRMAs and ERMAs would reduce the potential long-term risks that could otherwise result in the loss of vegetation cover, density, and potential declines in desirable LHC (LHC-A).

Educating those who use and value these resources would create advocates for the natural ecology and traditional uses of the vegetative resources, which could contribute to public awareness about the need to maintain and improve LHC. As people become aware of their impacts, they could become aware of techniques in land stewardship that are useful and less harmful to conserve and protect vegetation in the planning area.

Impacts from Special Designations Direction: The closure of roads within WSAs would reduce the potential for vehicles distributing invasive species/noxious weeds, compacting soil, and damaging vegetation because vehicles would be limited to boundary roads. Restricting surface disturbance in ACECs would minimize disturbance to vegetation. Visitor use and access is promoted in SRMAs, resulting in potential disturbance to vegetation from trampling and the introduction of invasive species/noxious weeds. The potential impacts resulting from SRMAs and ERMAs are discussed in more detail above.

Managing special designations, including WSAs, ACECs, and RNAs, would improve conditions for vegetation resources on about 22,600 acres. The Interim Management Policy (IMP) for WSAs prohibits or restricts motorized equipment use, which would limit weed treatment options in these areas. In addition, the restriction on motorized travel would result in less surface disturbance overall in the WSAs. However, dispersed hiking and equestrian use would increase the potential for introducing or spreading invasive species/noxious weeds. As with recreation, visitor use and access to these areas would increase the potential for impacts, resulting in

increased vegetation disturbance from trampling and increased potential for the introduction of invasive species/noxious weeds.

Currently approximately 62,900 acres of public lands are withdrawn within the planning area. Alternatives A and D propose to pursue a withdrawal on an additional, approximate 1,500 acres. These are the acres currently designated as RNAs, which have unique values or characteristics. The withdrawal would protect these RNAs from surface disturbance due to Locatable Minerals development, which would indirectly protect vegetation. Alternatives B and C propose to withdraw approximately 1,900 acres of RNA, as well as approximately 15,000 acres in the Soda Springs Hills Management Area and approximately 2,300 acres in the Bowen Canyon Bald Eagle Sanctuary ACEC. These withdrawals would also protect these areas from surface disturbance from Locatable Minerals development and, with the exception of the Bowen Canyon Bald Eagle Sanctuary, would further protect vegetation resources.

Downey Watershed, Stump Creek, Travertine Park, Cheatbeck Canyon, Dairy Hollow, Formation Cave, Oneida Narrows, Pine Gap, and Robbers Roost ACECs contain unique plant communities or communities that are not represented on about 11,400 acres that would be protected over the long term. Travertine Park, Cheatbeck Canyon, Dairy Hollow, Formation Cave, Oneida Narrows, Pine Gap, and Robbers Roost RNAs would provide protection for vegetation on an additional approximately 1,500 acres.

4.2.5.4 Alternative A

Impacts from Vegetation Direction:

Shrub Steppe Communities

Shrub Steppe Communities include vegetation mapped as Low-Elevation Shrub (including perennial grass/seedings), Mid-Elevation Shrub (including juniper encroachment), and Mountain Shrub. **Table 4.2.5-7** lists types of treatments and management actions proposed under Alternative A in shrub steppe.

In Alternative A, treatment footprint acres (approximately 3,400 acres in Aspen/Aspen Conifer Mix/Dry Conifer types) would be at lower levels than under Alternatives B (approximately 124,300 acres), C (approximately 54,900 acres), and D (approximately 162,200 acres). Since footprint treatment acres for Alternatives B, C, and D would be 16 to 48 times greater than under Alternative A and would treat all vegetation types needing treatment for LHC improvement, Alternative A would result in more uncharacteristic vegetation on the landscape than other Alternatives. In all but Mountain Shrub vegetation type, other Alternatives would result in more improvement in LHC than Alternative A. Compared to the other alternatives, Alternative A would provide fewest opportunities for long-term restoration of the vegetation types of the Shrub Steppe as juniper encroachment and uncharacteristic vegetation acres would increase across the landscape (**Appendix J – Section I**).

Table 4.2.5-7. Alternative A Vegetation Treatment Methods - Shrub Steppe Vegetation Types

Vegetation Type	Treatment Methods[1]					
	AMR[2]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Low-Elevation Shrub	Full	None	None	None	None	None
Mid-Elevation Shrub (includes juniper encroachment)	Full	None	None	None	None	None
Mountain Shrub	Full	None	None	None	None	None

[1]Treatment methods would only be applied following wildland fire for ES&R purposes. See *Impacts Common to All Alternatives* for discussion of effects.
[2]AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).

Vegetation management strategies under Alternative A would encourage full suppression (initial attack) as the AMR in all shrub types and would designate no areas as suitable for WFU to limit wildland fire acres burned in the shrub steppe vegetation types. In shrub steppe vegetation types where wildland fire's presence is less frequent than desired (Mid-Elevation Shrub and Mountain Shrub), management direction proposed under Alternative A would increase fire frequency/severity departure from historic decreasing LHC. In vegetation types where wildland fire's presence is more frequent than desired (Low-Elevation Shrub), Alternative A would improve or maintain fire frequency/severity departure generally improving LHC.

With no vegetation treatments, an emphasis on full suppression, and no WFU allowed, changes in vegetation composition, structure, and ecological function would primarily occur as a result of natural successional processes, improving overall conditions over time in the Low-Elevation Shrub type where too much disturbance has occurred over the last 30 years. In the Mid-Elevation and Mountain Shrub types, overall LHC would generally be maintained similar to current. At the stand level, noxious weeds, undesirable species such as cheatgrass, crested wheat seedings, and juniper encroachment areas would continue to increase at a faster rate than other Alternatives.

Low-Elevation Shrub, including Perennial Grass/Seedings

With no vegetation treatments, an emphasis on full suppression and no WFU allowed under Alternative A, changes in vegetation composition, structure, and ecological function would primarily occur as a result of natural successional processes. This would improve LHC over time in the Low-Elevation Shrub type, where too much disturbance has occurred over the last 30 years. Overall, in the short and long term, the Low Elevation vegetation type would improve from the current LHC-B (moderately departed from historic) to LHC-A (similar to historic), assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Natural succession would occur, creating

more acres of mid- and late successional vegetation as shrubs are established in current early successional acres. This would increase the desired LHC-A at the stand level by three times. Perennial grass/seedings and cheatgrass-dominated areas would be maintained similar to current, occupying 29% of the total vegetation type across the landscape. Though overall, these "uncharacteristic" acres are not contributing to a decline in the overall LHC at the landscape scale, 42,100 acres would remain dominated by uncharacteristic vegetation. Noxious weeds and undesirable species such as cheatgrass are likely to increase at a faster rate than under other Alternatives.

Natural succession processes would result in Low-Elevation Shrub LHC shifting dramatically over both the short and long term from current conditions. Currently, 20% of the Low-Elevation Shrub vegetation type occurs in LHC-A composed of mid/late successional vegetation, with 10-25% shrub cover and a healthy native understory of grasses and forbs, and would increase to 71%, under Alternative A (**Table 4.2.5-8**).

Table 4.2.5-8. Low-Elevation Shrub Land Health Condition for All Alternatives Following Vegetation Treatments and Natural Succession

Alternatives	Status	Land Health Condition Class		
		LHC-A[1]	LHC-B[2]	LHC-C[3]
A	Current	20%	51%	29%
	10 yrs.	71%	0.0%	29%
	30 yrs.	71%	0.0%	29%
B	Desired	>60%	20-25%	<20%
	10 yrs.	33%	0.0%	66%
	30 yrs.	0.0%	95%	5%
C	Desired	>50%	25-30%	<25%
	10 yrs.	71%	0.0%	29%
	30 yrs.	72%	0.0%	28%
D	Desired	>65%	15-20%	<15%
	10 yrs.	46%	55%	0.0%
	30 yrs.	100%	0.0%	0.0%

[1]Vegetative condition - Mid/Late successional w/healthy understory.
[2]Vegetative condition - Early, mid, or late overrepresented.
[3]Vegetative condition - Uncharacteristic.

Following implementation of Alternative A, in 30 years Low-Elevation Shrub would shift from primarily early successional and uncharacteristic vegetation to mostly mid- to late successional and uncharacteristic vegetation. In 30 years, most of the low elevation vegetation type would occur in LHC-A, composed of 10-25% shrub cover, with a healthy native understory of grasses and forbs. Conversely, assuming full suppression efforts are successful and limited disturbance occurs in the next 30 years, early successional vegetation would become scarce on the landscape, while uncharacteristic vegetation is maintained. While an increase in the number of acres in LHC-A (mid- to late successional vegetation) over the long term would be desirable for its

greater diversity and stability, ecological function could be compromised. Those acres with a mature shrub component that lack a healthy understory (LHC B) would continue to lose understory components; therefore, the desirable mosaic characterized by a more even distribution of vegetation would be absent under Alternative A. In other words, continued lack of disturbance would lead to an increasingly uneven mix of shrub species and lower overall plant diversity across the landscape as sagebrush areas of Low-Elevation Shrub would become increasingly decadent, leading to a greater buildup of fine fuels and dead woody material. This would be in addition to those areas increasingly dominated by uncharacteristic plant species.

In the short term, the risk that sagebrush and other associated shrub components of Low-Elevation Shrub would continue to burn with more frequency than historic would remain high, especially in areas dominated by highly flammable and hard to contain grasses (including perennial grass/seedings, cheatgrass, and early successional vegetation) currently occupying over 50% of the landscape. Current conditions and management actions have substantially altered the structure and composition of this vegetation type such that the risk of uncharacteristic wildland fires would be exacerbated.

The ability to achieve successful restoration of the Low-Elevation Shrub type is compounded by overall low resiliency to ecological disturbances and extensive sagebrush canopy cover. Conditions under Alternative A would continue to show an absence of perennial grasses, forbs, and shrub seedlings in the understory of mature and, in some cases, decadent sagebrush. Such conditions would limit the ability of this vegetation type to recover following disturbance because herbaceous and young shrub components important for the recruitment of new plants and seedlings would be lacking. Therefore, having a greater proportion of vegetation that can produce seedlings for recruitment, though desirable, would not occur under Alternative A.

Mid-Elevation Shrub, including juniper encroachment

With no vegetation treatments, an emphasis on full suppression, and no WFU allowed under Alternative A, changes in vegetation composition, structure, and ecological function would primarily occur as a result of natural successional processes. This would cause a decline in LHC over time in the Mid-Elevation Shrub type, where too little disturbance has occurred over the last 30 years. Overall, in the short and long term, the Mid-Elevation Shrub type would be maintained in current LHC-B (moderately departed from historic), assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Natural succession would occur, creating more acres of Mid-Closed Vegetation, as shrubs are established in current early successional acres, decreasing desired LHC-A at the stand level by 30% (from approximately 74,000 acres to 52,000 acres). Uncharacteristic areas, as well as juniper encroachment, would be maintained similar to current, occupying 31% of the total vegetation type across the landscape. Though overall, these “uncharacteristic” areas are not contributing to a decline in the overall LHC at the landscape scale, 46,800 acres would remain dominated by uncharacteristic vegetation and juniper encroachment. With a continued lack of disturbance, juniper encroachment is likely to increase at a faster rate than under other Alternatives. Alternative A would maintain a condition that is moderately departed from historic conditions (33- 66%) with regard to vegetation class distribution across the landscape. LHC-A could decline further as wildland fire is continually suppressed. Wildland fire frequency has decreased from historic frequency, increasing the potential risk for continued juniper

encroachment and threatening the health of the Shrub Steppe vegetation communities on the PFO.

At the stand level, Mid-Elevation Shrub LHC would decline over both the short and long term from current conditions. Currently, 52% of the Mid-Elevation Shrub vegetation type occurs in LHC-A, composed mainly of Early and Mid-Open Successional vegetation, which is composed of 10-25% shrub cover with a healthy native understory of grasses and forbs (**Table 4.2.5-9**). Under Alternative A, a lack of disturbance would result in the distribution of LHC classes to decline over the short term from the current 52% LHC-A to 48% LHC-A in the first 10 years. Because no additional disturbance would be implemented in years 11-30, in 30 years LHC would decline further to 37% (**Table 4.2.5-9**). Underlying Mid-Elevation Shrub LHC are the successional dynamics. LHC-A in Mid-Elevation Shrub is characterized by a diverse herbaceous understory with moderate-to-good coverage and a shrub canopy cover that is <25%. An abundance of shrub cover and juniper encroachment with lower herbaceous coverage reduces LHC-A conditions such that the trend could shift toward LHC-B or LHC-C.

Table 4.2.5-9. Mid-Elevation Shrub LHC for All Alternatives Following Vegetation Treatments and Natural Succession

		LHC Class		
Alternatives	**Status**	**LHC-A[1]**	**LHC-B[2]**	**LHC-C[3]**
A	Current	52%	25%	23%
	10 yrs.	48%	29%	23%
	30 yrs.	37%	40%	23%
B	Desired	>60%	20-25%	<20%
	10 yrs.	61%	29%	10%
	30 yrs.	41%	0.0%	59%
C	Desired	>50%	25-30%	<25%
	10 yrs.	51%	29%	20%
	30 yrs.	35%	0.0%	65%
D	Desired	>65%	15-20%	<15%
	10 yrs.	100%	0.0%	0.0%
	30 yrs.	45%	0.0%	55%

[1]Vegetative condition - Early, mid-open, late.
[2]Vegetative condition - Mid-closed.
[3]Vegetative condition uncharacteristic.

In Alternative A, natural succession, full suppression AMR, and no WFU would shift vegetation toward the more dominant mature shrub- and juniper-dominated vegetation, steadily reducing the younger herbaceous vegetation. However, though LHC-A would be declining, much of the herbaceous cover that remains would continue to occur in good condition. Reducing herbaceous cover further would nonetheless be undesirable because a more desirable composition would include a diversity of necessary perennial forbs and grasses with good cover for increased resilience to disturbance. As with Low-Elevation Shrub, the presence of an early herbaceous

understory and young shrubs is necessary to provide seedling recruitment following disturbances.

Short- and long-term trends would favor the increase in mountain big sagebrush and bitterbrush. However, in many instances Mid-Elevation Shrub stands are in transition, and, as has been observed throughout the Interior Columbia Basin, juniper has been aggressively invading Shrub Steppe communities during the past 120 years and continues to do so (Miller et al. 2000). The risk of further juniper encroachment on the Mid-Elevation Shrub type under Alternative A would continue. Such encroachment indicates a decrease in diversity and biomass and results in a complete decrease in the early perennial grass and herbaceous understory. These conditions would be followed by the continued increase in shrubs and tree cover. Accompanying the reduction in the understory is also the risk of reduction in the sagebrush and bitterbrush components. While Mid-Elevation Shrub is also in a higher precipitation zone than Low-Elevation Shrub and thus would be expected to be more resilient, juniper encroachment under Alternative A could increase soil aridity and accelerate soil erosion. Whether these dynamics actually occur following juniper encroachment is debatable and largely unknown and would depend on climatic conditions, including periods of precipitation and drought (Belsky 1996).

Mountain Shrub

With no vegetation treatments, an emphasis on full suppression and no WFU allowed under Alternative A, similar to Low- and Mid-Elevation Shrub, natural succession would be the principle agents of change in the Mountain Shrub vegetation type under Alternative A. Effects of Alternative A would be similar to other alternatives (*Section 4.2.5.3, Impacts Common to All Alternatives*).

Forest/Woodland Vegetation Communities

Areas mapped as aspen, Aspen/Conifer mix, Dry Conifer, Wet/Cold Conifer or Natural Juniper are discussed in this section. **Table 4.2.5-10** lists the management methods that would be used in tandem with natural successional processes under Alternative A for each of the vegetation types that comprise the Forest Vegetation community. Management would emphasize fire suppression with vegetation management methods occurring in the Aspen/Conifer vegetation types only (3,400 acres total). Treatments in Aspen/Conifer would focus on restoring forest ecosystems using prescribed fire and nonfire treatment methods. Treatments under this alternative would also occur at a substantially smaller scale than under all other alternatives.

In the forested vegetation types, vegetation treatments would not be extensive enough to improve LHC. Under Alternative A (Table 4.2.5-10), less than 10% of the total acres would be treated, compared to 30-40% under other Alternatives (**Table 4.2.5-2**). Vegetation management in the forested vegetation types under Alternative A would generally emphasize maintaining or increasing the aspen component in the currently mixed Aspen/Conifer stands. In conifer dominated stands, Alternative A would focus on thinning trees to improve stand vigor.

Table 4.2.5-10. Alternative A Vegetation Treatment Methods - Forested Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[2]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Aspen/Aspen Conifer Mix/Dry Conifer[1]	Full	None	X	X[3]	X	X
Wet/Cold Conifer	Full	None	None	None	None	None
Natural Juniper	Full	None	None	None	None	None

[1]Treatment methods would only be applied following wildland fire for ES&R purposes. See *Impacts Common to All Alternatives* for discussion of effects.
[2]AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).
[3]Emphasis on selective thinning/logging of Douglas-fir.

Aspen/Aspen Conifer Mix/Dry Conifer

With minimal vegetation treatments, an emphasis on full suppression and no WFU allowed, Alternative A would result in the maintenance of conditions in LHC-B (moderately departed 33-66%). Lack of disturbance in a historically frequent fire regime would cause a continued decline in Early and Mid-Successional vegetation where aspen is a major healthy component. The current 45% distribution of the Aspen/Aspen Conifer Mix/Dry Conifer types occurring in LHC-A (Early and Mid-Successional with healthy aspen component) would generally be maintained over the long term **(Table 4.2.5-11).**

In Alternative A, stands with a mix of aspen and Douglas fir (Mid-Successional) would be targeted for selective mechanical treatments. Treatment would be conducted to thin and utilize Douglas fir. Following mechanical treatment, prescribed fire would be used to reduce hazard and to prepare the site for aspen regeneration. Treatments would generally decrease conifer competition, increasing the currently scarce Early and Mid-Successional components across the landscape. However, treatment levels proposed under Alternative A (10% of total vegetation types) are not extensive enough to improve the overall LHC-B.

At the stand level, Alternative A would slightly reduce the amount of desired LHC-A (Early to Mid-Successional with healthy aspen component) from current 40,500 acres to 38,800 acres. Natural succession and the continued lack of wildland fire in a historically frequent fire regime, LHC-C (Late Successional dominated by conifer) would generally be maintained. In general, stands dominated by conifer are more susceptible to insect/disease infestation, as well as uncharacteristic wildland fire. Alternative A increases the amount of the LHC-C more than any of the other Alternatives.

Table 4.2.5-11. Aspen/Aspen Conifer Mix/Dry Conifer Land Health Condition for All Alternatives Following Vegetation Treatments and Natural Succession

Alternatives	Status	Land Health Condition Class		
		LHC-A[1]	LHC-B[2]	LHC-C[3]
A	Current	45%	0.0%	55%
	10 yrs.	46%	0.0%	54%
	30 yrs.	43%	0.0%	57%
B	Desired	>30%	25-30%	<45%
	10 yrs.	51%	0.0%	49%
	30 yrs.	47%	0.0%	53%
C	Desired	>30%	35-40%	<35%
	10 yrs.	45%	22%	33%
	30 yrs.	63%	0.0%	37%
D	Desired	>25%	35-40%	<40%
	10 yrs.	29%	33%	38%
	30 yrs.	14%	40%	46%

[1]Vegetative condition - Early/Mid successional w/healthy aspen component.
[2]Vegetative condition - Early/Mid successional conifer/aspen mix.
[3]Vegetative condition - Late successional dominated by conifer.

Wet/Cold Conifer

With no vegetation treatments, an emphasis on full suppression, and no WFU allowed, Alternative A would result in the maintenance of conditions in LHC-B (moderately departed 33-66%) across the landscape, similar to other alternatives. Since impacts are common to all alternatives, see *Section 4.2.5.3, Impacts Common to All Alternatives*.

Riparian

Impacts on Riparian areas under Alternative A are similar to those described under the other vegetation types. As with most of the vegetation types under Alternative A, no vegetation treatments would occur. Riparian areas would be rehabilitated following wildland fire if needed. These treatments would have direct and indirect effects, but whether or not they would have long-term effects on increasing the number of miles of Riparian areas that could meet PFC is unknown.

Other/Vegetated Lava

Impacts on Other/Vegetated Lava are similar to those described for the Shrub Steppe vegetation types in this alternative. No pre-fire treatments would be conducted on this vegetation type under Alternative A.

Impacts from Special Status Species Direction: Management actions to protect and enhance Special Status wildlife and plants under Alternative A would be consistent with actions to restore vegetation resources under Alternative A. Treatment, including the use of fire and nonfire methods, would be limited to the extent required to protect federally listed species under the ESA, or as required by Idaho BLM sensitive species management. However, measures to

improve and restore special status species habitat under Alternative A would be less comprehensive than under Alternatives B, C, and D.

Management direction under Alternative A, including fire suppression and post-fire ES&R and restoration to protect sagebrush in the late and closed vegetation classes in the Low-, Mid-Elevation Shrub, and Mountain Shrub types would be consistent with conservation measures identified in the Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006) and current *Guidelines for Management of Columbian Sharp-Tailed Grouse Habitats* (Geisen and Connelly 1993). The use of mechanical techniques (chaining, brush beating, root plowing, and hand cutting or thinning), chemical techniques (using herbicide for weed control, thinning sagebrush, or clearing trees and shrubs), or biological techniques (insects) to rehabilitate and restore areas following fire suppression would be viable management actions. However, treatments and the methods used to apply them would be affected by timing, particularly by the breeding and wintering seasons. Restoration efforts would conflict with the guidance for special status wildlife because no treatments would occur in the short term under Alternative A.

Management of pygmy rabbit habitats would also be consistent with greater sage-grouse habitat management and would require timing considerations as described above.

Ferruginous hawk management that improves nesting habitat in Juniper habitat in the Curlew area and Bear Lake Plateau would not affect Alternative A and would be consistent with the management actions that would achieve older, widely spaced Juniper trees for nesting. The location of nests would need to be surveyed and considered before encroaching juniper is treated. The timing of vegetation treatments could be indirectly affected in the short term if they were to occur within a half-mile of nests between March 1 and July 15.

Riparian improvements would not be affected by management actions to maintain habitat and reduce habitat fragmentation for the Utah valvata snail, boreal toad, northern leopard frog, white pelican, Yellowstone and Bonneville cutthroat trout, and Bear Lake endemic fish. In particular, actions that require habitat management for the Yellowstone and Bonneville cutthroats to attain the highest quality habitat would help to improve degraded riparian areas. Fencing livestock from nonfunctional streams or at-risk streams that also contain Yellowstone or Bonneville cutthroat would directly impact riparian and wetland vegetation over the long term. About 36% of the streams in the planning area are currently in PFC and this percentage would be maintained across all alternatives.

Direct impacts on special status plants could occur primarily from surface-disturbing activities resulting from wildland and prescribed fire, mechanical and herbicidal treatments to control noxious weeds, and seedings in occupied habitat. Seedings in occupied special status plant habitat could result in plant competition for space and nutritive resources available from soils and water resources. Rehabilitative treatments could improve conditions for special status plants by reducing competition. Prior to conducting vegetation treatments, management would need to consider avoidance and mitigation, especially because emergency fire suppression has the potential to affect special status plants.

Impacts from Wildland Fire Management Direction: Wildland Fire Management Direction for Alternative A includes full suppression as the AMR to wildland fires in all vegetation types

and designates no areas as suitable for WFU. Actions to manage wildland fire would rely on aggressive fire suppression tactics and strategies aimed at controlling wildland fires, which would generally limit wildland fire acres burned in all vegetation types. Suppression actions, such as dozer lines and off-road engine use, could have more impact on vegetation under Alternative A than under any other alternative. Additionally, Alternative A would perpetuate further departure in LHC in those vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer vegetation types). Conversely, Alternative A would maintain current LHC in those vegetation types that historically burned less frequently (Low-Elevation Shrub, Wet/Cold Conifer, Natural Juniper, vegetated rock/lava). Impacts from this wildland fire management strategy would occur because the lack of treatments would continue to allow uncharacteristic vegetation to increase, juniper encroachment areas to increase, and closed canopy, late successional vegetation to increase in forested vegetation types.

Impacts from Lands and Realty Direction: Decisions regarding land acquisitions, exchange, disposal, withdrawal, access, and LUA (e.g., ROW) restrictions would have indirect effects on vegetation resources and would be similar in type but different in magnitude between Alternatives. In Alternative A, only about 32,200 acres (5%) of BLM lands have been identified for land tenure adjustment, and 581,600 acres would remain in federal ownership. By comparison, about the same amount would be transferred out of federal ownership under Alternative B, 1% more than under Alternative C, and 5% less than under Alternative D. Therefore, impacts on vegetation from land sale or exchange could be long term and generally focused on small and isolated tracts. Consolidation and disposal of isolated tracts of public lands would potentially improve LHCs where vegetation treatments could be implemented over more contiguous public lands.

Overall, combined existing, agency-designated, and priority utility corridors would have minor long-term effects on vegetation resources. The primary effects on vegetation from LUAs result from short-term, surface-disturbing activities related to construction and maintenance of pipeline, transmission, and alternative energy ROWs. Impacts include vegetation trampling and removal, soil compaction and erosion from wind and rills, and invasive species/noxious weeds invasions. Utility corridors could also result in habitat fragmentation of vegetation types, which have a direct, long-term negative impact on ecological health. Generally, long-term impacts could be avoided by continued implementation of standard stipulations for LUA development. Restrictions other than standard stipulations would be implemented on about 8% (approximately 50,900 acres) of public lands. However, these additional restrictions would not have the same long-term effects on vegetation when compared to Alternatives B and C, but would be comparable to Alternative D. By closing 5% (approximately 30,700 acres) of public lands to LUA development, the effects would be similar to restrictions. However, all proposed projects would be subject to site-specific NEPA analysis, which would first identify potential impacts on vegetation and, at minimum, provide mitigation measures that would enhance, protect, and restore disturbed areas as deemed necessary.

Acquiring legal access on 44 miles of road and trail for recreation would indirectly affect vegetation resources on 5% (approximately 32,700 acres) of public lands. Any increased access is likely to result in some direct impacts on vegetation resulting from trampling, plant collecting, and introducing invasive species/noxious weeds.

Because the BLM would not pursue additional withdrawals, there would be no long-term effect on vegetation resources. By contrast, finalizing the withdrawals on about 1,500 acres for RNA designation could result in some indirect protection for some unique vegetative communities, though the overall long-term contribution to vegetative health would be small.

Impacts from Livestock Grazing Direction: Livestock grazing would continue to be available on 91% (approximately 556,300 acres) of public lands within the planning area. The availability of lands for livestock grazing would be similar to Alternative B and C, with a 5% increase over Alternative D. However, the ratio of AUMs to public lands available (.17) would be the same across all alternatives, suggesting that the intensity of livestock grazing on available public lands would remain unchanged from current conditions.

Compared to Alternatives B, C, and D, Alternative A would not close any livestock grazing allotments and would restrict trailing to the Blackfoot Stock Driveway (BSD). Livestock grazing would be unavailable on approximately 57,500 acres and would restore vegetation composition, structure, and ecological functioning primarily in the localized areas where these closures occur**.**

Impacts from Minerals and Energy Direction: Any area affected by surface disturbance would change the dynamics within vegetation classes of the affected vegetation types and thereby alter LHC. Effects could be short or long term depending on the type, intensity, and duration of the minerals and energy activity and any subsequent reclamation and restoration. These impacts would occur across all alternatives and could occur from mining Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals.

Potential impacts on vegetation resources are directly associated with the total area open to development. **Table 4.2.5-12** lists by vegetation type the number of acres open, those open with an NSO stipulation, those closed, and those administratively unavailable to Fluid Minerals Leasing. Most public lands would be open for consideration of Mineral Leasing, permitting, and claims. Although large acreages would be opened, only limited exploration and development are anticipated to occur, as shown in **Table 4.3.4-1** (Section 4.3.4, Minerals and Energy)**.** The general effects of mineral exploration and development on vegetation resources are discussed in Section 4.2.5.3, Impacts Common to All Alternatives. This section is a discussion of impacts on vegetation resources based on the differences between Alternative A and the other alternatives.

Fluid Minerals Leasing opportunities and restrictions would be comparable for Alternatives A and D; approximately 602,600 acres (98%) of public lands would be open to consideration of Fluid Mineral Leasing, although approximately 314,000 acres would only be leased with an NSO stipulation. This leaves approximately 288,600 acres subject to potential surface disturbance from exploration and development if leased for Fluid Minerals (**Table 4.2.5-12**).

No areas of Low-Elevation Shrub would be completely closed to consideration for Fluid Mineral development. About 58% of Low-Elevation Shrub (approximately 22,200 acres) would be open for consideration of Fluid Mineral Leasing with potential surface disturbance from exploration and development. About 41% of Low-Elevation Shrub (approximately 15,900 acres) would be open for consideration of Fluid Mineral Leasing with NSO restrictions, which is also comparable to Alternative B. In comparison with Alternative C, acres open are greater and acres with NSO restrictions are less.

Table 4.2.5-12. Approximate Public Land Acres Open, with an NSO Stipulation, Closed and Administratively Unavailable to Fluid Mineral Leasing by Vegetation Type and Alternative

Vegetation Type	Alternatives												
	A			B				C			D		
	Open	NSO	Closed	Open	NSO	Closed	Administratively Unavailable[1]	Open	NSO	Closed	Open	NSO	Closed
Low-Elevation Shrub	22,200 58%	15,900 42%	0 0%	12,500 33%	15,800 41%	0 0%	9,800 26%	12,800 34%	25,300 66%	0 0%	22,200 58%	15,900 42%	0 0%
Perennial Grass	36,300 56%	28,300 44%	0 0%	7,300 11%	11,600 18%	0 0%	45,800 71%	34,000 53%	30,600 47%	0 0%	36,400 56%	28,200 44%	0 0%
Seedings	41,300 98%	800 2%	0 0%	800 2%	0 0%	0 0%	41,400 98%	41,300 98%	800 2%	0 0%	41,300 98%	800 2%	0 0%
Mid-Elevation Shrub	67,200 47%	73,600 52%	1,200 1%	34,400 24%	49,800 35%	1,200 1%	56,500 40%	51,600 36%	89,200 63%	1,200 1%	66,900 47%	73,900 52%	1,200 1%
Mountain Shrub	78,700 42%	106,100 57%	2,300 1%	37,000 20%	70,300 38%	2,300 1%	77,400 41%	76,300 41%	108,500 58%	2,300 1%	78,200 42%	106,600 57%	2,300 1%
Juniper	13,400 52%	12,100 47%	200 1%	4,800 19%	7,700 30%	200 1%	13,000 51%	13,400 52%	12,100 47%	200 1%	13,400 52%	12,100 47%	200 1%
Aspen/Aspen-Conifer Mix/Dry Conifer	21,300 24%	61,500 68%	7,500 8%	17,100 19%	53,400 59%	7,500 8%	12,300 14%	20,400 23%	62,400 69%	7,500 8%	21,200 23%	61,600 68%	7,500 8%
Wet/Cold Conifer	300 43%	400 57%	0 0%	300 43%	400 57%	0 0%	0 0%	300 43%	400 57%	0 0%	300 43%	400 57%	0 0%
Riparian	0 0%	6,600 100%	0 0%	0 0%	6,200 94%	0 0%	400 6%	0 0%	6,600 100%	0 0%	0 0%	6,600 100%	0 0%
Other/Vegetated Lava	8,000 48%	8,600 52%	0 0%	4,300 26%	10,800 65%	0 0%	1,500 9%	5,500 33%	11,100 67%	0 0%	7,600 46%	9,000 54%	0 0%
Total Acres	288,700	313,900	11,200	118,500	226,000	11,200	258,100	255,600	347,000	11,200	301,800	300,800	11,200

[1]No administratively unavailable lands are identified in Alternatives A, C and D.
Figures rounded to nearest 100 acres.

Under Alternative A, as identified in **Table 4.2.5-12**, Fluid Mineral Leasing would be allowed across the ten vegetation types, with some areas of each type being restricted with an NSO stipulation. Also, a portion of the Mid-Elevation Shrub, Mountain Shrub, Juniper, and Aspen/Aspen-Conifer Mix/Dry Conifer vegetation types would be closed to Fluid Mineral Leasing where they occur within WSAs. The areas with and without NSO stipulations are comparable to Alternative D. In general, Alternative A has fewer acres by vegetation type with an NSO stipulation then Alternative C but more than Alternative B. This is because Alternative B has acres that are administratively unavailable and do not require an NSO stipulation.

Areas of individual vegetation types without surface restrictions could see an undeterminable amount of disturbance, trampling, breakage, or loss of vegetation from exploration and development, whereas no surface occupancy would prevent such disturbance and loss of vegetation.

For Alternative A, approximately 591,200 acres (96%) of public lands would be open to consideration of Solid Mineral Leasing (**Table 4.2.5-13**). Total nondiscretionary and discretionary closures would be approximately 22,600 acres. The acreage open to solid Mineral Leasing would be comparative across alternatives. Compared to Alternatives B and C, Alternative A would be a 1% increase in acres open for consideration of Solid Mineral Leasing. Compared to Alternative D, this would be a 1% decrease in acres open for leasing over Alternative A. The closures would be primarily due to the presence of WSAs, ACECs, and RNAs.

Table 4.2.5-13. Vegetation Types and Approximate Acres Open to Solid Mineral Leasing with No Closure Restrictions for All Alternatives

Vegetation Type	Alternative		
	A	**B and C**	**D**
Low-Elevation Shrub	35,000	37,800	37,800
Perennial Grass	64,400	63,200	64,600
Seedings	42,100	42,100	42,100
Mid-Elevation Shrub	139,900	135,300	139,300
Mountain Shrub	181,700	178,400	183,100
Juniper	25,500	25,400	25,500
Aspen/Aspen-Conifer Mix/Dry Conifer	79,000	79,900	82,000
Wet/Cold Conifer	700	600	700
Riparian	6,500	6,500	6,500
Other/Vegetated Lava	16,400	13,200	15,900
Total Acres	591,200	582,400	597,500

About 92% (approximately 35,000 acres) of Low-Elevation Shrub would be open to consideration for Solid Mineral Leasing under Alternative A. This would be a 7% decrease compared to Alternatives B, C, and D (approximately 37,800 acres).

About 99% of the Mid-Elevation Shrub (approximately 139,900 acres), and Other/Vegetated Lava (approximately 16,400 acres) would be open to consideration of Solid Mineral Leasing under Alternative A. Compared to Mid-Elevation Shrub under Alternatives B and C, areas open would increase 4% and would increase 1% over Alternative D. Compared to Alternative B and C, areas open to consideration of Solid Mineral Leasing in Other/Vegetated Lava would increase by 24% and by 3% compared to Alternative D.

About 97% of Mountain Shrub (approximately 181,700 acres) would be open to consideration of Solid Mineral Leasing. This would be about a 2% increase over Alternatives B and C but comparable to Alternative D. About 98% of Riparian (approximately 6,500 acres) would also be open to consideration for Solid Mineral Leasing and would be comparable to Alternatives B, C, and D.

About 99% (approximately 25,500 acres) of Juniper would be open to consideration of Solid Mineral Leasing under Alternative A. This would be comparable to Alternatives B, C, and D.

About 88% (approximately 79,000 acres) of the combined Aspen/Aspen Conifer Mix/Dry Conifer would be open to consideration for Solid Mineral Leasing under Alternative A. Compared to Alternatives B, C, and D, the change would be about 1%.

The largest percentage (approximately 100%) open to consideration of Solid Mineral Leasing would occur in the Wet/Cold Conifer, Perennial Grass, and Seedings. Compared to Alternatives B and C, the acreage open in Wet/Cold Conifer (approximately 700 acres) would increase 16% compared to Alternatives B and C and would be comparable to Alternative D. Areas open to consideration of Solid Mineral Leasing would increase 2% in Perennial Grass, compared to Alternatives B and C, and would remain the same for Alternative D. Seedings would be the same across all alternatives.

About 98% of Riparian (approximately 6,500 acres) would be open to consideration of Solid Mineral Leasing under Alternative A and would be comparable to all alternatives.

About 99% of Other/Vegetated Lava (approximately 16,400 acres) would be open to consideration of Solid Mineral Leasing under Alternative A. This would be a 24% increase compared to Alternatives B and C, and a 3% increase compared to Alternative D.

A long-term and potentially major impact associated with the prospecting, leasing, and development of phosphate mining could involve selenium release standards or applicable or relevant and appropriate requirements (ARARs). The lack of ARARs for reclamation vegetation would present a toxicological hazard to native plant species and livestock using reclaimed mining areas.

Under Alternative A, approximately 581,100 acres (95%) of public lands would be open to Mineral Material disposal activities (**Table 4.2.5-14**). Closures are associated with

Table 4.2.5-14. Vegetation Types and Approximate Acres Open to Mineral Materials Disposal with No Closure Restrictions for All Alternatives

Vegetation Type	Alternative			
	A	B	C	D
Low-Elevation Shrub	37,200	37,800	35,400	37,800
Perennial Grass	63,300	63,200	60,900	64,600
Seedings	42,100	42,100	42,000	42,100
Mid-Elevation Shrub	136,700	135,200	126,000	139,300
Mountain Shrub	180,000	178,500	168,200	183,100
Aspen/Aspen-Conifer Mix/Dry Conifer	79,900	79,900	75,600	81,700
Juniper	25,400	25,400	25,200	25,500
Wet/Cold Conifer	700	600	600	700
Riparian	3,600	6,500	2,900	6,500
Other/Vegetated Lava	12,200	13,200	8,000	15,900
Total Acres	581,100	582,400	544,800	597,200

nondiscretionary closures and withdrawals for power- and water-related facilities and for historic trails. The impact on vegetation from closures would be approximately 32,700 acres (5%). This would consist of protection to various vegetation types on approximately 32,700 acres (5%) from possible Mineral Material disposal activities. This would the same compared to Alternative B. Compared to Alternative C, this would be a 7% increase in potential acres open to disposal activities, and compared to Alternative D, this would be a 3% decrease.

About 93% of Low-Elevation Shrub (approximately 35,600 acres) would be open for consideration of Mineral Material disposal activities under Alternative A. This would be comparable to Alternatives B, C, and D.

About 100% of the Seedings (42,100 acres) would be open for consideration of Mineral Material disposal. This would be comparable across alternatives.

About 98% of the Perennial Grass (approximately 63,300 acres) would be open for consideration of Mineral Material disposal activities under Alternative A and would be comparable to Alternative B. Compared to Alternative C, this would be a 4% increase and a 2% decrease compared to Alternative D.

About 96% of the Mid-Elevation Shrub (approximately 136,700 acres) would be open to for consideration of Mineral Material disposal activities. Compared to Alternative B, areas open in Mid-Elevation Shrub would increase 1%, would increase 7% over Alternative C, and would decrease 2% compared to Alternative D.

About 96% of Mountain Shrub (approximately 180,700 acres) would be open for consideration of Mineral Material disposal activities. Compared to Alternative B, areas open in Mountain

Shrub would increase 1%, would increase 6% over Alternative C, and would decrease 2% compared to Alternative D.

About 88% (approximately 79,900 acres) of the combined Aspen/Aspen Conifer Mix/Dry Conifer would be open for consideration of Mineral Material disposal activities under Alternative A. This would be comparable to Alternative B, would be a 5% increase compared to Alternative C, and would be a 2% decrease compared to Alternative D.

About 99% (approximately 25,500 acres) of Juniper would be open for consideration of Mineral Material disposal activities under Alternative A. This would be comparable to Alternatives B, C, and D.

About 100% of the Wet/Cold Conifer (approximately 700 acres) would be open for consideration of Mineral Material disposal activities under Alternative A, but varying between 20 and 100 acres across all alternatives. The area open for consideration would be comparable to Alternative D but would be a 14% increase from Alternatives B and C.

About 55% of Riparian (approximately 3,600 acres) would also be open for consideration of Mineral Material disposal activities under Alternative A. Compared to Alternatives B and D, this would be a 43% decrease and a 11% increase compared to Alternative C.

Compared to Alternative B, areas open under Alternative A for consideration of Mineral Material disposal activities in Other/Vegetated Lava would decrease 7% and would decrease by 23% compared to Alternative D. Compared to Alternative, areas open for consideration of Mineral Material disposal would increase 25%.

Under Alternatives A and D, approximately 582,600 acres (95%) of public lands would be open to location of mining claims (**Table 4.2.5-15**). Total nondiscretionary and discretionary closures would be approximately 31,200 acres. Compared to Alternatives B and C, this would be a 3% increase in acres open and a 36% decrease in acres withdrawn from mineral entry and protected from potential surface disturbance from development of mining claims. Existing valid mining claims would continue and could be developed in compliance with established requirements.

About 93% of Low-Elevation Shrub (approximately 35,600 acres) would be open to mining claim location under Alternatives A and D. This would be comparable to Alternatives B and C.

About 100% of the Seedings (42,100 acres) would be open to mining claim location under Alternative A and would be comparable across all alternatives. About 97% of the Perennial Grass (approximately 62,800 acres) would be open to mining claim location under Alternative A. Compared to Alternatives B and C, this would be a 2% increase and comparable to Alternative D.

About 96% of the Mid-Elevation Shrub (approximately 135,800 acres) would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 3% increase.

About 96% of Mountain Shrub (approximately 179,300 acres) would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 3% increase.

Table 4.2.5-15. Vegetation Types and Approximate Acres Open to Location of Mining Claims (Locatable Minerals) with No Closure Restrictions for All Alternatives

	Alternative	
Vegetation Type	**A and D**	**B and C**
Low-Elevation Shrub	35,600	35,600
Perennial Grass	62,800	61,500
Seedings	42,000	42,000
Mid-Elevation Shrub	135,800	131,600
Mountain Shrub	179,300	173,400
Juniper	25,500	25,400
Aspen/Aspen-Conifer Mix/Dry Conifer	86,100	82,800
Wet/Cold Conifer	700	600
Riparian	3,300	3,200
Other/Vegetated Lava	11,500	8,800
Total Acres	582,600	564,900

About 95% (approximately 86,100 acres) of the combined Aspen/Aspen Conifer Mix/Dry Conifer would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 3% increase.

About 99% (approximately 25,500 acres) of Juniper would be open to mining claim location under Alternatives A and D, and would be comparable to Alternatives B and C. Juniper would have a low potential to be impacted from Locatable mineral development.

About 100% of the Wet/Cold Conifer (approximately 700 acres) would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 14% increase.

About 50% of Riparian (approximately 3,300 acres) would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 2% increase.

About 69% of Other/Vegetated Lava (approximately 11,500 acres) would be open to mining claim location under Alternatives A and D. Compared to Alternatives B and C, this would be a 13% increase.

Impacts from Recreation Direction: Impacts from OHV management would be greatest under Alternative A. About 67% of the existing OHV designations are open (approximately 61,300 acres) and not yet designated (approximately 352,200 acres). About 32% (approximately 199,000 acres) of public lands are designated as limited. With this level of open, cross-country travel available, the potential loss of vegetation could become extensive. Shrub Steppe vegetation, particularly the Low-Elevation Shrub, would be susceptible to irreparable damage. Rehabilitation of disturbed areas following fire suppression activities would make newly treated areas vulnerable to damage from OHVs, which could impair the ability to restore vegetation as part of an ecologically healthy system and to increase forage for livestock and wildlife. Cross-

country travel would also be a vector for increased invasive species/noxious weeds. Temporary restrictions on OHV travel in treated areas would be necessary to mitigate erosion and trampling.

Continuing to manage approximately 199,000 acres as limited to existing roads and trails would address some of the expected increases in the erosion of soil and the trampling of vegetation resulting from the proliferation of two-tracks throughout most of the planning area.

Potential impacts on vegetation could occur in the Pocatello and Blackfoot River SRMAs (approximately 55,200 acres). Alternative A would designate about 1% less SRMA area than under Alternatives B and C, and the same area as Alternative D. Compared to these other alternatives, Alternative A would also provide fewer targeted and structured recreational management strategies that could otherwise be used to reduce potential impacts on vegetation from the level and intensity of specific recreational uses (e.g., camping, motorized vehicles, hiking).

4.2.5.5 Alternative B

Impacts from Vegetation Direction:

Shrub Steppe Communities

Shrub Steppe Communities include vegetation mapped as Low-Elevation Shrub (including perennial grass/seedings), Mid-Elevation Shrub (including juniper encroachment), and Mountain Shrub. **Table 4.2.5-16** lists the management methods that would be used under Alternative B for each of the vegetation types that comprise the Shrub Steppe community.

Table 4.2.5-16. Alternative B Vegetation Treatment Methods - Shrub Steppe Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Low-Elevation Shrub	Full[3]	None[3]	X	X	X	X
Mid-Elevation Shrub (including juniper encroachment)	Limited	X	X	X	X	X
Mountain Shrub[3]	Limited	X	X	X	X	None

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).
[3] With the exception of areas currently mapped as perennial grass/seedings where limited AMR would be emphasized and WFU is suitable.

Of the total vegetation treatments applied under Alternative B, treatments would primarily be used to emphasize restoration in the Low-Elevation Shrub type (48%) followed by treatments in the Mountain Shrub type (23%), and Mid-Elevation Shrub (17%) type (**Appendix J**, **Section I**).

In Alternative B, treatment footprint acres (124,300 acres) would be greater than Alternative A (3,400 acres) and C (54,900 acres) but less than Alternative D (approximately 162,200 acres). Footprint treatment acres proposed under Alternatives B are designed to mimic historic vegetation/fuel conditions by treating uncharacteristic vegetation and increasing those successional classes that are currently scarce on the landscape. In the sagebrush steppe vegetation types, Alternative B emphasizes eliminating uncharacteristic and nonnative vegetation (e.g., cheatgrass and crested wheat seedings) and increasing shrub cover, particularly in Low-Elevation Shrub where mid and late-successional acres are scarce.

Vegetation management strategies under Alternative B would encourage full suppression (initial attack) as the AMR in Low-Elevation Shrub, and would encourage limited suppression (monitoring or confinement) as the AMR in Mid-Elevation Shrub, perennial grass seedings, and Mountain Shrub. Alternative B would designate all shrub types that historically burned frequently as suitable for WFU to restore fire's natural role. Management direction proposed under Alternative B would increase LHC by improving vegetation-fuel condition and decreasing fire frequency/severity departure in all vegetation types. Changes in vegetation composition, structure, and ecological function would occur through management proposed under Alternative B that would improve overall conditions over time in the Low-Elevation Shrub type where too much disturbance has occurred over the last 30 years. In the Mid-Elevation and Mountain Shrub types, overall LHC would generally be maintained similar to current. At the stand level, noxious weeds, undesirable species such as cheatgrass, crested wheat seedings, and juniper encroachment areas would be targeted for treatment relatively aggressively (approximately 80% of uncharacteristic treated in Low Elevation Shrub and 50% treated in Mid-Elevation shrub) and reduced in proportion across the landscape.

Low-Elevation Shrub, including Perennial Grass/Seedings

With the vegetation treatment strategy proposed under Alternative B, an emphasis on full suppression, and no WFU allowed in Low-Elevation Shrub, changes in vegetation composition, structure, and ecological function would primarily occur as a result of restoration actions, in combination with natural successional processes which would improve LHC over time in the Low-Elevation Shrub type where too much disturbance has occurred over the last 30 years. Overall, in the short and long-term, the Low Elevation vegetation type would improve from the current LHC-B (moderately departed from historic) to LHC-A (similar to historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Treatments would be targeted in areas with uncharacteristic vegetation, as well as in early successional areas where seeding and chemical treatments would be applied to increase shrub cover. In addition to restoration actions, natural succession would occur creating more acres of mid and late successional vegetation as shrubs are established in current early successional acres reducing the currently over abundant early successional vegetation which improves LHC overall. Perennial grass/seedings and cheatgrass dominated areas would be reduced by approximately 10,000 acres occupying 23% of the total vegetation type across the landscape in the long-term, converted to early successional, and through natural succession would move to mid/late successional acres. Overall, the reduction in

"uncharacteristic" acres would not be enough to contribute to an improvement in the overall LHC at the landscape scale.

At the stand level, treatments, in combination with natural succession processes would result in Low-Elevation Shrub LHC shifting dramatically over both the short and long term from current conditions. Currently, 20% of the Low-Elevation Shrub vegetation type occurs in LHC-A composed of mid/late successional vegetation with 10-25% shrub cover with a healthy native understory of grasses and forbs (**Table 4.2.5-8**). Given Alternative B, in 10 years, LHC A would increase to 33% but would reduce to30 years due to an over abundance of mid/late successional vegetation resulting from lack of disturbance, as well as natural succession.

Aggressively treating 48% of the Low-Elevation Shrub type (approximately 6,900 acres annually) would reduce some of the wildland fire risk to the shrub component because prescribed fire, chemical and mechanical methods would be used to target uncharacteristic vegetation that has been largely responsible for increased fuel loads. Improving conditions favorable to native and desirable nonnative seedings would help stabilize treated and already disturbed areas. Treatments would maintain and enhance the structural and vegetation diversity in degraded areas within the Low-Elevation Shrub type by seeding, especially those habitats significant for greater sage-grouse and Columbian sharp-tailed grouse and other sensitive species. Because most of the Perennial Grass/Seedings types could trend toward more mature vegetation, treatment priority would be given to those areas with less than 5% canopy cover. Areas that exceed 15% canopy cover would be initially treated chemically to reduce the desirable canopy cover conditions to below 15%.

In the ensuing 20 years following vegetation treatments, natural successional processes would be the principle agents of change, shifting the distribution of LHCs at the stand level. As mid/late successional acres with shrub cover 10-25% and productive understory would increase, stand level LHC would decrease as early successional vegetation becomes scarce. Following implementation of Alternative B, in 30 years Low-Elevation Shrub would shift from primarily early successional and uncharacteristic vegetation to mostly mid/late successional and uncharacteristic vegetation. Those acres with a mature shrub component that lack a healthy understory (LHC-B) would continue to lose understory components. Therefore, the desirable mosaic characterized by a more even distribution of vegetation would be absent under Alternative B in 30 years.

The risk of uncharacteristic wildland fire would be reduced given Alternative B as areas dominated by highly flammable and hard to contain grasses (including perennial grass/seedings, cheatgrass, and early successional vegetation) currently occupying over 50% of the landscape would be reduced to <10%.

Mid-Elevation Shrub, including juniper encroachment

Vegetation treatments under Alternative B would occur on approximately 8,800 more acres than under Alternative C and approximately 38,600 fewer acres than under Alternative D. Of the total vegetation treatments applied under Alternative B (approximately 124,400 acres), about 17% of these treatments would be applied to the Mid-Elevation Shrub type (**Appendix J**). About 14% of the treatments occurring in the Mid-Elevation Shrub type (approximately 3,500 acres) would focus on juniper encroachment.

With Alternative B's vegetation treatment strategy, an emphasis on limited suppression and WFU allowed in Mid-Elevation Shrub, changes in vegetation composition, structure, and ecological function would primarily occur as a result of restoration, in addition to natural successional processes. Disturbance levels proposed would maintain the overall LHC (LHC-B) over time in the Mid-Elevation Shrub type but are not extensive enough to improve LHC. Overall, in the short and long-term, the mid Elevation vegetation type would be maintained in current LHC-B (moderately departed from historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Treatments and natural succession would occur creating more acres of mid-closed vegetation as shrubs are established in current early successional acres decreasing desired LHC-A at the stand level by 22% (from approximately 74,000 acres to 58,000 acres. Uncharacteristic areas, as well as juniper encroachment would be reduced from current occupying 24% of the total vegetation type across the landscape. Though overall, reducing the acres of "uncharacteristic" and juniper encroachment are improving stand level conditions, treatments are not extensive enough to contribute to an overall improvement in LHC. With a continued lack of disturbance, juniper encroachment is likely to increase at a faster rate than other Alternatives. Alternative B would maintain a condition that is moderately departed from historic conditions (33- 66%) with regard to vegetation class distribution across the landscape. LHC-A could decline further, even with WFU and limited fire suppression actions. Opportunities to utilize limited AMR and WFU are anticipated to be minimal given land ownership patterns, and social/political concerns. Wildland fire frequency would continue to occur less frequently than historic, increasing the potential risk for continued juniper encroachment and threatening the health of the Shrub Steppe vegetation communities on the PFO.

At the stand level, Mid-Elevation Shrub LHC would improve over the short-term but decline over the long term from current conditions. Currently, 52% of the Mid-Elevation Shrub vegetation type occurs in LHC-A composed mainly of early and mid-open successional vegetation composed of 10-25% shrub cover with a healthy native understory of grasses and forbs (**Table 4.2.5-9**). Vegetation treatments applied under Alternative B would cause the distribution of LHC classes to increase over the short term from the current 52% LHC-A to 61% LHC-A in the first 10 years. Because no additional treatments would be implemented in years 11-30, in 30 years LHC would decline to 41% similar to other Alternatives.

LHC-A in Mid-Elevation Shrub is characterized by a diverse herbaceous understory with moderate-to-good coverage and a shrub canopy cover that is <25%. Lack of disturbance would cause an abundance of shrub cover and juniper encroachment with lower herbaceous coverage reducing LHC-A conditions such that the trend could shift toward LHC-B or LHC-C (late/mid-closed successional).

In Alternative B, treatments and natural succession would shift the landscape toward the more dominant mature shrub- and juniper-dominated vegetation, steadily reducing the younger herbaceous vegetation. However, though LHC-A would be declining, much of the herbaceous cover that remains would continue to occur in good condition. Reducing herbaceous cover further would nonetheless be undesirable because a more desirable composition would include a diversity of necessary perennial forbs and grasses with good cover for increased resilience to disturbance. As with Low-Elevation Shrub, the presence of an early herbaceous understory and young shrubs is necessary to provide seedling recruitment following disturbances.

Short- and long-term trends would favor the increase in mountain big sagebrush and bitterbrush. However, in many instances Mid-Elevation Shrub stands are in transition, and, as has been observed throughout the Interior Columbia Basin, juniper has been aggressively invading Shrub Steppe communities during the past 120 years and continues to do so in the present (Miller et al. 2000). The risk of further juniper encroachment on the Mid-Elevation Shrub type under Alternative B would continue to occur, but would be less than Alternative A. Such encroachment indicates a decrease in diversity, and results in a complete decrease in the early perennial grass and herbaceous understory. These conditions would be followed by the continued increase in shrubs and tree cover. Accompanying the reduction in the understory is also the risk of reduction in the sagebrush and bitterbrush components.

Mountain Shrub

Vegetation treatments under Alternative B would occur on approximately 16,500 acres (9%), similar to both Alternatives C (16,000 acres) and D (15,000 acres). Impacts of Alternative B are similar to other alternatives (*Section 4.2.5.3, Impacts Common to All Alternatives*).

Forest/Woodland Vegetation Communities

Table 4.2.5-17 lists the management methods that would be used in tandem with natural successional processes under Alternative B for each of the vegetation types that comprise the Forested Vegetation community. Management would emphasize limited suppression, WFU, and restoration treatments in Aspen/Conifer (13,200 acres) and no treatments, full suppression and no WFU in Wet/Cold Conifer and Natural Juniper.

Table 4.2.5-17. Alternative B Vegetation Treatment Methods – Forested Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Aspen/Aspen Conifer Mix/Dry Conifer	Limited	X	X	X	X	X
Wet/Cold Conifer	Full	None	None	None	X	None
Natural Juniper	Full	None	None	None	None	None

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).

Treatments in Aspen/Conifer would focus on restoring forest ecosystems using prescribed fire and non-fire treatment methods. Vegetation management in the forested vegetation types under Alternative B would generally emphasize maintaining or increasing LHC-A while also increasing disturbance frequency to within its historic range. Treatments would also aim to reduce the potential for uncharacteristic large scale, stand replacement wildland fires. Vegetation treatments would also focus on restoring vegetation resources using chemical, planting, and

mechanical treatment methods where uncharacteristic invasive species/noxious weeds or nonnative vegetation occurs.

In forested types, Alternative B emphasizes increasing the aspen component by decreasing the conifer component in Aspen/Conifer and Dry Conifer vegetation types. Compared to Alternative A, Alternative B would improve vegetation conditions by increasing the level of disturbance in Aspen/Aspen Conifer Mix/Dry Conifer types that historically burned more frequently.

In the forested vegetation types, vegetation treatments proposed under Alternative B would not be extensive enough to improve overall LHC. In Alternative B, 30% of the total forest vegetation would be treated (**Table 4.2.5-2**). Vegetation management in the forested vegetation types under Alternative B would generally emphasize maintaining or increasing the aspen component in the currently mixed Aspen/Conifer stands. In conifer dominated stands, Alternative A would focus on thinning trees to improve stand vigor.

Aspen/Aspen Conifer Mix/Dry Conifer

With the vegetation treatment strategy proposed under Alternative B, an emphasis on limited suppression and WFU allowed, Alternative B would result in the maintenance of conditions in LHC-B (moderately departed 33-66%), similar to other Alternatives. Lack of disturbance in a historically frequent fire regime would cause a continued decline in early and mid successional vegetation where aspen is a major, healthy component. The current 45% distribution of the Aspen/Aspen Conifer Mix/Dry Conifer types occurring in LHC-A (early/mid successional with healthy aspen component) would generally be maintained over the long term (**Table 4.2.5-11**).

Similar to Alternative A, under Alternative B, stands with a mix of aspen and Douglas fir (mid successional) would be targeted for selective mechanical treatments. Treatment would be conducted to thin and utilize Douglas-fir. Following mechanical treatment, prescribed fire would be used to reduce hazard and to prepare the site for aspen regeneration. Treatments would generally decrease conifer competition increasing the currently scare early and mid successional components across the landscape. Treatment levels proposed under Alternative B (30% of total vegetation types) are not extensive enough, however, to improve the overall LHC-B.

At the stand level, Alternative B would increase the amount of desired LHC-A (early/mid successional with healthy aspen component) by 2 times (from current 18,200 acres to 42,200 acres), however, with natural succession and the continued lack of wildland fire in a historically frequent fire regime, LHC-C (late successional dominated by conifer) would increase by 2 times, similar to Alternative A. In general, stands dominated by conifer are more susceptible to insect/disease infestation, as well as uncharacteristic wildland fire.

Wet/Cold Conifer

With no vegetation treatments, an emphasis on full suppression and no WFU allowed, Alternative B would result in the maintenance of conditions in LHC-B (moderately departed 33-66%) across the landscape, similar to other alternatives (*Section 4.2.5.3, Impacts Common to All Alternatives*).

Riparian

Impacts on Riparian areas under Alternative B would be similar to those described under Alternative A and the other vegetation types. As with most of the vegetation types under

Alternative B, no vegetation treatments would occur. However, treatments that would occur in the other vegetation types (approximately 124,450 footprint acres) would be more than 20% greater than under Alternative A. These treatment methods could have direct and indirect effects on increasing the number of miles of Riparian areas that could meet PFC.

Other/Vegetated Lava
Same as Alternative A.

Impacts from Special Status Species Direction: Management actions to protect and enhance special status wildlife and plants under Alternative B would be consistent with actions to restore vegetation resources under Alternative A. Many of the actions described under Alternative A would be implemented under Alternative B, but Alternative B would be more extensive than Alternative A. Treatment, including the use of fire and nonfire methods, would be limited to the extent required to protect federally listed species under the ESA, or as required by Idaho BLM sensitive species management. However, measures to improve and restore special status species habitat under Alternative B would be less comprehensive than under Alternative C, but more comprehensive than under Alternative D.

Implementing the Greater Yellowstone Bald Eagle Management Plan would have indirect short-term effects on vegetation treatments, depending on the location of occupied nests where human activity would be restricted.

Management direction under Alternative B, including fire suppression and post-fire ES&R and restoration to protect sagebrush in the late and closed vegetation classes in the Low-, Mid-Elevation Shrub, and Mountain Shrub types would be consistent with conservation measures identified in the Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006) and current *Guidelines for Management of Columbian Sharp-Tailed Grouse Habitats* (Geisen and Connelly 1993). The use of mechanical techniques (chaining, brush beating, root plowing, and hand cutting or thinning), chemical techniques (herbicide for weed control, thinning sagebrush, or clearing trees and shrubs), or biological techniques (insects) would be broadened over Alternative A. ES&R and restoration of areas following fire suppression that would focus on improving sagebrush canopy cover in key and source habitats, including leks, would not affect vegetation management under Alternative B. These treatments would be consistent with the improvement desired in the Low-Elevation Shrub, Mid-Elevation Shrub and Mountain Shrub types.

There are approximately 513,200 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat in the PFO area. In documented breeding and brood rearing habitats and winter habitats with seasonal restrictions (March 1 through June 30 and December 15 through March 1, respectively) mechanical and prescribed fire vegetation treatments may require adjustments, such as timing of activity or moving the activity to a different area to avoid impacts to grouse. Site specific assessments may allow activities to take place during the restricted periods pending further NEPA analysis as appropriate.

Management of pygmy rabbit habitats would not affect sagebrush habitat management, as described for greater sage-grouse and Columbian sharp-tailed grouse. Development of a habitat management plan (HMP) would not affect vegetation management under Alternative B and would be consistent with the management actions that would occur.

Ferruginous hawk management that would improve nesting habitat in the Juniper type in the Curlew area and Bear Lake Plateau would not affect Alternative B and would be consistent with the management actions that would achieve older, widely spaced Juniper trees for nesting. The location of nests would need to be surveyed and considered before encroaching juniper is treated. The timing of vegetation treatments could be indirectly affected in the short term if they were to occur within a half-mile of nests between March 1 and July 15.

Riparian improvements would generally be the same as those described under Alternative A; and vegetation management would not be affected by management actions to maintain habitat and reduce habitat fragmentation for the Utah valvata snail, boreal toad, northern leopard frog, white pelican, Yellowstone and Bonneville cutthroat trout, and Bear Lake endemic fish. In particular, actions that require habitat management for the Yellowstone and Bonneville cutthroat trout to attain the highest quality habitat would help to improve degraded Riparian areas. Fencing livestock from nonfunctional streams or from at-risk streams that also contain Yellowstone or Bonneville cutthroat would directly impact Riparian and wetland vegetation over the long term.

Direct and indirect effects on restoration and rehabilitation of vegetation from special status plant management would be similar to those described under Alternative A. Management actions to improve vegetation could be directly affected over the long term where restriction would occur within a half-mile of special status plant populations. Actions that would prohibit road construction and dozer lines would reduce fragmentation of contiguous vegetation. However, limiting these methods and reducing equipment access could put less accessible patches of contiguous vegetation at higher risk under conditions of catastrophic wildland fire. Prior to conducting vegetation treatments, management would need to consider avoidance and mitigation, especially because emergency fire suppression could affect special status plants.

Impacts from Wildland Fire Management Direction: Wildland Fire Management Direction for Alternative B includes full suppression as the AMR to wildland fires in all vegetation types that historically burned infrequently (Low-Elevation Shrub, Wet/Cold Conifer, Natural Juniper) and limited suppression as the AMR in all vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer), and designates 265,000 acres as suitable for WFU in those vegetation types that historically burned frequently. Actions to manage wildland fire would rely on less aggressive suppression tactics in those vegetation types needing more disturbance and would rely on aggressive fire suppression tactics and strategies, aimed at controlling wildland fires, in those vegetation types that need less disturbance. Therefore, suppression actions (e.g., dozer lines, off-road engine use, etc.) would likely have less impact on vegetation than Alternative A. Additionally, Alternative B would perpetuate less departure in LHC in those vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer vegetation types). Conversely, Alternative B would maintain current LHC in those vegetation types that historically burned less frequently (Low-Elevation Shrub, Wet/Cold Conifer, Natural Juniper, vegetated rock/lava). Impacts from this wildland fire management strategy would occur because the lack of fire occurrence and minimal levels of treatments would continue to allow uncharacteristic vegetation to increase, juniper encroachment areas to increase, and closed canopy, late successional vegetation to increase in forested vegetation types. Impacts from wildland fire management would be the same as those described for each vegetation type above, affecting overall FRCC as described in the Wildland Fire Management section. Compared to Alternative A, Alternative B would increase vegetation

treatments by nearly 37-fold, with an emphasis on vegetation types in the Shrub Steppe and Aspen/Aspen Conifer Mix/Dry Conifer types.

Impacts from Lands and Realty Direction: If only half of the Zone 4 lands available for disposal were actually transferred out of federal ownership, then less approximately 28,150 acres would be disposed of and approximately 585,650 acres would remain in federal ownership. Lands administered by the PFO total approximately 613,800 acres, so the PFO could lose approximately 5% of its public lands from land tenure actions.

Long-term effects that would occur under Alternative B would be the same as described under Alternative A and would include consolidating public lands into large contiguous tracts that could be managed more efficiently and maintaining the current condition of vegetation resources. Disposal of lands would be about the same as Alternative A, 1% greater than Alternative C, and about 5% less than Alternative D. Lands acquired could not be more degraded than lands disposed or exchanged. In some cases, acquired lands may require implementation of vegetation treatments to control invasive species/noxious weeds and stabilize soils before native vegetation could be restored. Consolidation and disposal of isolated tracts of public lands would potentially improve LHCs where vegetation treatments could be implemented over more contiguous public lands.

Overall, combined existing, agency-designated, and priority utility corridors would have minor long-term effects on vegetation resources and would be the same in all alternatives. The primary effects on vegetation from LUAs result from short-term, surface-disturbing activities related to construction and maintenance of pipeline, transmission, and alternative energy ROWs. Impacts would be the same as in all alternatives and include vegetation trampling and removal, soil compaction and erosion from wind and rills, and invasive species/noxious weeds invasions. Restrictions other than standard stipulations would be implemented on less than 1% (approximately 23,800 acres) of public lands, which is the same for Alternatives C and D. However, these additional restrictions would not have the same long-term effects on vegetation when compared to Alternative A, but would be similar to Alternatives C, and D. By closing less than 1% (approximately 1,900 acres) of public lands to LUA development through RNA designation, the effects would be similar to restrictions, though on a smaller scale. All proposed projects under Alternative B would, however, be subject to site-specific NEPA analysis, which would further reduce impacts on vegetation and, at minimum, provide mitigation measures to enhance, protect, and restore disturbed areas.

Legal access for recreation would be accomplished through land acquisition and disposal with emphasis on priority areas. Consolidation would indirectly affect vegetation resources up to about 5% (approximately 28,150 acres) of public lands, which would be the same as Alternative A, 1% greater than Alternative C, and 5% less than Alternative D. New routes, route alignment, and maintenance activities would likely result in some direct and indirect impacts on native vegetation resulting from trampling, plant collection, and the introduction of invasive species/noxious weeds.

BLM would pursue additional withdrawals on about 1,900 acres for RNA designation, which could result in some indirect protection for some unique vegetative communities, though the overall long-term contribution to vegetative health would be small and comparable to Alternative C.

Impacts from Livestock Grazing Direction: Livestock grazing would be available on 91% (approximately 560,000 acres) of public lands within the planning area. The availability of lands for livestock grazing would be similar to Alternatives A and C, with a 5% increase over Alternative D. However, the ratio of AUMs to public lands available (.17) would be the same across all alternatives, suggesting that the intensity of livestock grazing on available public lands would remain unchanged from current conditions.

Partially closing five livestock grazing allotments and eliminating eight other allotments (approximately 8,400 acres), restricting trailing to the BSD, and making livestock grazing unavailable on approximately 53,800 acres would restore vegetation composition, structure, and ecological functioning primarily in the localized areas where these closures occur**.**

Impacts from Minerals and Energy Direction: As described under Alternative A, potential impacts on vegetation resources would be directly associated with the area open and available for Mineral Materials. The impacts of Alternative B on vegetation from solid minerals are similar to Alternative A, but impacts on vegetation from Fluid Minerals are less under Alternative B because approximately 11,200 acres are identified as closed to Fluid Minerals Leasing, 258,100 acres are administratively unavailable, and approximately 226,000 acres are open with an NSO stipulation (**Figure 2-18**). **Table 4.2.5-12** identifies by vegetation type the number of acres that are open, that are open with an NSO stipulation, that are closed, and that are administratively unavailable to Fluid Mineral Leasing.

Limited exploration and development would occur, as shown in **Tables 4.3.4-1**, **4.3.4-9**, and **4.3.4-10** (Section 4.3.4, Minerals and Energy). The locations are not all known because future exploration would be necessary to delineate the location of valuable minerals that could be developed. The general effects of mineral exploration and development on vegetation resources are discussed in Section 4.2.5.3, Impacts Common to All Alternatives. This discussion concerns the impacts on vegetation resources, based on the differences between Alternative B and the other alternatives.

Table 4.2.5-12 identifies acreages that are open, that are closed, that are administratively unavailable, and that have NSO stipulations by vegetation type. Approximately 344,500 acres (56%) would be open to Fluid Mineral Leasing with 226,000 acres (65% of open acres) having an NSO stipulation. The remaining approximately 269,300 acres (44%) would be closed or administratively unavailable to leasing. The area closed to Fluid Mineral Leasing in all alternatives is less than two percent (approximately 11,200 acres) of the planning area. Under this alternative, 258,100 acres, or 42%, would be administratively unavailable for Fluid Mineral Leasing. In Alternatives A, C, and D, approximately 602,600 acres (98%) would remain open to leasing (**Table 4.2.5-12**).

Under this alternative, the percentage of public lands open to Fluid Mineral Leasing with an NSO stipulation is less than other alternatives but much less public land is designated as open. As a result, the percentage of open public lands with an NSO stipulation under this alternative is approximately 28% less than under Alternatives A and D and 35% less than under Alternative C.

Table 4.2.5-13 compares the number of acres potentially impacted due to Solid Leasable Minerals leasing where no surface or closed restrictions would occur for each Alternative. For

Alternative B, approximately 582,400 acres (95%) of public lands would be open to consideration of Solid Leasable Minerals Leasing (**Table 4.2.5-13**). Total nondiscretionary and discretionary closures would be approximately 31,400 acres. Compared to Alternative A, this would be a 1% decrease in potential acres open for consideration of Solid Mineral Leasing. Compared to Alternative C, the potential acres disturbed would be the same. Compared to Alternative D, this would be a 3% decrease in potential acres open for consideration of Solid Mineral Leasing. The closures would be primarily due to the presence of ACECs and RNAs.

About 99% (approximately 37,800 acres) of Low-Elevation Shrub would be open to consideration for Solid Mineral Leasing under Alternative B. This would be a 7% increase compared to Alternative A, but similar to Alternatives C, and D.

About 95% of the Mid-Elevation Shrub (approximately 135,300 acres) under Alternative B would be open to consideration of Solid Mineral Leasing. Compared to Alternative A, this would decrease 4%, and decrease 1% compared to Alternative D. Areas open would the same as Alternative C.

About 95% of Mountain Shrub (approximately 178,400 acres) under Alternative B would be open to consideration of Solid Mineral Leasing. This would be about a 2% decrease from Alternatives A, 3% decrease from Alternative D, and the same as Alternative C.

Impacts on Juniper from areas open to consideration of Solid Mineral Leasing under Alternative B would be the same as described under Alternative A.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer from areas open to consideration for Solid Mineral Leasing under Alternative B would be the same as described under Alternative A.

About 86% (approximately 600 acres) of Wet/Cold Conifer under Alternative B would be open to consideration of Solid Mineral Leasing. This would be comparable to Alternative C, but a 14% decrease from Alternatives A and D.

Areas open to consideration of Solid Mineral Leasing would decrease 2% in Perennial Grass under Alternative B compared to Alternatives A and D, and remain the same as Alternative C. Seedings would be the same in all alternatives.

Impacts on Riparian from areas open to consideration of Solid Mineral Leasing under Alternative B would be the same described under Alternative A.

About 80% of Other/Vegetated Lava (approximately 13,200 acres) under Alternative B would open to consideration of Solid Mineral Leasing and would be comparable to Alternative C. This would be a 20% decrease compared to Alternative A, and a 17% decrease compared to Alternative D.

A long-term and potentially major impact associated with the prospecting, leasing and development of phosphate mining could involve selenium release standards (ARARs). The lack of ARARs for reclamation vegetation would present a toxicological hazard to native plant species and livestock using reclaimed mine areas.

In Alternative B, approximately 582,400 acres (95%) of public lands would be open to Mineral Material disposal activities (**Table 4.2.5-14**). Closures are associated with nondiscretionary closures and withdrawals for power- and water-related facilities and for historic trails. The impact on vegetation from closures would be approximately 31,400 acres (5%). This would be about the same as under Alternative A, though the differences in acres open to consideration for disposal activities would vary by vegetation type. Compared to Alternative C, this would be a 7% increase. Compared to Alternative D, this would be a 3% decrease.

Impacts on Low-Elevation Shrub under Alternative B would be generally the same as described under Alternative A and comparable to Alternatives A and D. However, compared to Alternative C, there would be a 7% increase in the areas open to consideration of Mineral Material disposal.

Impacts on Seedings (approximately 100%) would be the same for all alternatives. Impacts on Perennial Grass (approximately 98% or 63,300 acres) under Alternative B would be the same as described under Alternative A.

About 95% of the Mid-Elevation Shrub (approximately 135,200 acres) under Alternative B would be open to for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mid-Elevation Shrub would decrease 1%, increase 7% over Alternative C, and decrease 3% compared to Alternative D.

About 95% of Mountain Shrub (approximately 180,700 acres) under Alternative B would be open for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mountain Shrub would decrease 1%, increase 6% over Alternative C, and decrease 3% compared to Alternative D.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer under Alternative B would be the same as described under Alternative A.

Impacts on Juniper from areas open to consideration for Mineral Material disposal activities under Alternative B would be the same as described under Alternative A, and the area open would be the same in all alternatives (approximately 99%).

About 86% of the Wet/Cold Conifer (approximately 700 acres) under Alternative B would be open for consideration of Mineral Material disposal activities. This would be comparable to Alternative C, but a 14% decrease from Alternatives A and D.

About 98% of Riparian (approximately 6,500 acres) under Alternative B would also be open for consideration of Mineral Material disposal where desirable deposits of sand and gravel are deposited. Compared to Alternative A, this would be a 117% increase, a 76% increase compared to Alternative C, and the same as Alternative D.

Compared to Alternative A, areas open for consideration of Mineral Material disposal activities in Other/Vegetated Lava under Alternative B would increase 8%, increase by 65% compared to Alternative C, and decrease 17% compared to Alternative D.

In Alternatives B and C, approximately 564,900 acres (92%) of public lands would be open to location of mining claims (**Table 4.2.5-16**). Total nondiscretionary and discretionary closures would be approximately 48,900 acres. Compared to Alternatives A and D, this would be a 3%

decrease in acres open to location of mining claims, but a 57% increase in acres withdrawn from mineral entry and protected from potential surface disturbance from development of mining claims. Existing valid mining claims would continue and could be developed in compliance with established requirements.

About 93% of Low-Elevation Shrub (approximately 35,600 acres) under Alternative B would be open to mining claim location and to lands open under Alternatives B and C. This would be comparable to Alternatives A and D.

About 100% of the Seedings (42,100 acres) under Alternative B would be open to mining claim location and to lands open, and would be comparable to all alternatives.

About 95% of the Perennial Grass (approximately 61,500 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 2% decrease.

About 93% of the Mid-Elevation Shrub (approximately 131,600 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 3% decrease.

About 93% of Mountain Shrub (approximately 173,400 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 3% decrease.

About 92% (approximately 82,800 acres) of the combined Aspen/Aspen Conifer Mix/Dry Conifer would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 2% increase.

About 99% (approximately 25,500 acres) of Juniper would be open to mining claim location and to lands open under Alternatives B and C, and would be comparable to Alternatives A and D.

About 86% of the Wet/Cold Conifer (approximately 600 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 14% decrease.

About 50% of Riparian (approximately 3,200 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 2% decrease.

About 53% of Other/Vegetated Lava (approximately 8,800 acres) would be open to mining claim location and to lands open under Alternatives B and C. Compared to Alternatives A and D, this would be a 23% decrease.

Overall, Alternative B (and Alternatives C and D) would reduce the effects of mining impacts on vegetation resources by implementing mitigation and protection measures that would sustain or improve LHCs. Operational standards would require topsoil salvaging and protection and the restoration of hydrologic functioning to ensure reclamation following project completion achieves site stability that is consistent with pre-development site potential.

Although various laws regulate contamination of water, little direction exists for contamination of vegetative forage. This is an issue at phosphate mines where selenium can be bioaccumulated in reclamation plants and the plants can become toxic to livestock and wildlife. Setting standards for contaminants in vegetation would assist in achieving a post-mining condition were vegetation is safe for grazing purposes. Reclamation requirements involving revegetation exists in various laws and regulations, the plan pulls a broad variety of standards and guidelines (**Appendices A** and **H**) together to provide stronger, more unified direction applicable to disturbed mineral development sites in Southeast Idaho. This would tend to result in continued or additional effort and improvement by mineral developers to achieve the revegetation conditions envisioned by these standards. Selection of plant species for reclamation that reduce the bioaccumulation of selenium would further improve site stability. Adherence to established standards and guidelines would result in revegetation that assists in reestablishment of site stability, nutrient cycling, hydrologic function and integrity, which would be utilized as a safe source of forage for wildlife and livestock in the future. Guidelines under Alternatives B, C, and D would also require that reclamation follow-up continue as necessary until established standards and LHCs for vegetation are achieved.

Impacts from Recreation Direction: Impacts from OHVs on vegetation under Alternative B are similar to those identified under Alternative A. Most OHV activity occurs in the Pocatello SRMA. However, development of long-range travel management plans would redesignate all of the approximately 61,300 acres currently designated as "open." About 98% (approximately 601,100 acres) of public lands would be designated as limited, and the remaining 2% (approximately 12,700 acres) would be designated as closed. Travel restrictions placed on OHV cross-country travel would reduce some of the proliferation of two-track roads that trample and kill vegetation, degrade riparian areas, and erode soils. Until the comprehensive travel management plans are developed and implemented, all remaining public lands not designated as closed would be limited to existing routes. Even though designations would change, the PFO's ability to manage and eliminate the continual proliferation of two-track routes has proven difficult in the past, and, without adequate enforcement, destruction of vegetation and associated resources would continue.

The long-term impacts on vegetation would also continue under Alternative B because the travel management plan would recognize the opportunity to designate "intensive use areas" of less than 80 acres, drawing additional OHV users to open areas where vegetation resources could be affected. The short- and long-term effects would depend on the site-specific locations of these open areas. Impacts of the travel management plans would be assessed through additional NEPA analysis.

In this alternative, the approximately 3,600-acre Oneida Narrows SRMA would be designated, increasing the approximate total acreage of SRMAs in the planning area from 55,200 to 58,800 acres (approximately 33,400 acres in the Pocatello SRMA and approximately 21,800 acres in the Blackfoot River SRMA). Developing resources within SRMAs would help concentrate recreational activities, thereby reducing new disturbances and increasing protection to vegetation resources in surrounding areas.

Impacts from Special Designation Direction: Designating the 400 acre Petticoat Peak area as an RNA in addition to the Travertine Park, Cheatbeck Canyon, Dairy Hollow, Formation Cave, Oneida Narrows, Pine Gap and Robbers Roost RNAs would protect the unique vegetative

communities present on approximately 1,900 acres by excluding OHVs, LUA, and minerals and energy development. Public access, including hiking, hunting, and nonmotorized use could result in many of the impacts on vegetation as described under Alternative A.

Opening most of the public lands in the planning area to snowmobiling could have affects on vegetation and important habitats, depending on the depth of snow cover, length of allowable snowmobiling season, and the intensity of use. In Alternative B, areas where snowmobiling would be prohibited include WSAs, ACECs, RNAs, Pocatello SRMA, and the Soda Springs Hills Management Area.

Overall, Alternative B would reduce the likelihood for impacts on vegetation resulting from motorized conflicts.

4.2.5.6 Alternative C

Impacts from Vegetation Direction:

Shrub Steppe Communities

Table 4.2.5-18 lists the vegetation treatment methods that would be used under Alternative C for each of the vegetation types that comprise the Shrub Steppe community.

Table 4.2.5-18. Alternative C Vegetation Treatment Methods - Shrub Steppe Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Low-Elevation Shrub	Full[3]	X[2]	None	None	X[4]	None
Mid-Elevation Shrub (including juniper encroachment)	Full[3]	X[2]	X	X	X	X
Mountain Shrub	Full	X	X	X	X	None

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).
[2] WFU would be used in greater sage-grouse source habitat only after site specific project level coordination with Idaho Department of Fish and Game (IDFG).
[3] A limited AMR would be emphasized in SG restoration and key habitat
[4] Treatment of invasive species/noxious weeds.

In Alternative C, treatment footprint acres (54,900 acres) would be greater than Alternative A (3,400 acres) but less than Alternative B (124,900 acres), and Alternative D (162,200 acres). Footprint treatment acres proposed under Alternative C are designed to protect sagebrush steppe by treating minimal acres in Low-Elevation Shrub (only 3% of uncharacteristic). Alternative C treatments would focus on restoring Mid-Elevation and Mountain Shrub vegetation creating

more early successional vegetation dominated by native forbs and grasses in these types where early successional classes are scarce on the landscape. Alternative C also emphasizes minimizing the level of human management and intervention as vegetation would be treated on only 7% of the Shrub Steppe (34,600 acres). Compared to other Alternatives, treatments proposed under Alternative C would result in maintaining LHC in the Shrub Steppe vegetation types whereas Alternatives B and D would result in a greater improvement in LHC at the stand level.

Vegetation management strategies under Alternative C would encourage full suppression (initial attack) as the AMR in Low- and Mid-Elevation vegetation types, with exception of restoration habitat for greater sage-grouse where limited suppression (monitoring or confinement) would be emphasized to increase the native grass, forb and shrub component. The AMR in Aspen/Conifer, Wet/Cold Conifer and Mountain Shrub would also be limited suppression. Alternative C would designate approximately 212,000 acres as suitable for WFU generally limiting wildland fire acres in shrub steppe vegetation types. Management direction proposed under Alternative C would increase LHC by decreasing fire frequency/severity departure in Mountain Shrub, and Aspen/Conifer vegetation types, but would decrease LHC in Mid-Elevation Shrub where not enough treatments are proposed. LHC would be maintained in Low-Elevation Shrub where Alternative C would limit fire's role in areas that historically burned less frequently.

Low-Elevation Shrub, including Perennial Grass/Seedings

With minimal vegetation treatments (1,300 acres), an emphasis on full suppression and no WFU allowed within greater sage-grouse Source Habitat, changes in vegetation composition, structure, and ecological function given Alternative C would primarily occur as a result of natural successional processes which would improve LHC over time in the Low-Elevation Shrub type where too much disturbance has occurred over the last 30 years. Overall, in the short and long-term, the Low Elevation vegetation type would improve from the current LHC-B (moderately departed from historic) to LHC-A (similar to historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years.

Natural succession would occur creating more acres of mid and late successional vegetation as shrubs are established in current early successional acres increasing desired LHC-A (mid/late successional with 10-25% shrub cover) at the stand level by 3 times. Perennial grass/seedings and cheatgrass dominated areas would be maintained similar to current occupying 29% of the total vegetation type across the landscape. Though overall, these "uncharacteristic" acres are not contributing to a decline in the overall LHC at the landscape scale, approximately 42,000 acres would remain dominated by uncharacteristic vegetation. Noxious weeds and undesirable species such as cheatgrass are likely to increase at a faster rate Alternatives B and D. About 3% of Low-Elevation Shrub type would be treated, and treatments would focus on approximately 1,300 acres within the Perennial Grass component (3% of uncharacteristic acres) where acres would be treated with chemicals and seeded to increase the shrub and native grass/forb component.

At the stand level, with an emphasis on full suppression and limited opportunities for WFU, LHC-A (mid/late successional vegetation with 10-25% shrub cover and healthy herbaceous understory) would shift from the current 20% distribution to 72% (**Table 4.2.5-8**). Such treatments would result in 3 times the amount of more desirable LHC-A, a total decrease in LHC-B, and no change in LHC-C.

Following implementation of Alternative C, in 30 years Low-Elevation Shrub would shift from primarily early successional and uncharacteristic vegetation to mostly mid/late successional and uncharacteristic vegetation. In 30 years, most of the low elevation vegetation type would occur in LHC-A composed of 10-25% shrub cover with a healthy native understory of grasses and forbs. Conversely, assuming suppression efforts are successful in protecting greater sage-grouse habitat and limited disturbance occurs in the next 30 years, early successional vegetation would become scarce on the landscape, while uncharacteristic vegetation is generally maintained. While an increase in the number of acres in LHC-A (mid/late successional vegetation) over the long term would be desirable for its greater diversity and stability, ecological function could be compromised. Those acres with a mature shrub component that lack a healthy understory would continue to lose understory components. Therefore, the desirable mosaic characterized by a more even distribution of vegetation would be absent under Alternative C, similar to Alternative A.

Uncharacteristic wildland fires could still cause dramatic changes in Low-Elevation Shrub, but would be suppressed where the risk of losing Source and Key Habitat important for greater sage-grouse is high. Using vegetation treatments strategically place on the landscape to protect Source and key Habitats would allow the use of WFU, mechanical and chemical methods to control annual grass species and noxious weeds which would help to reduce uncharacteristic wildland fire events and restore Low-Elevation Shrub. However, assuming the objective is to minimize human intervention, these restorative actions would be limited to cases where uncharacteristic wildland fire threatens the persistence of the native Low-Elevation Shrub type.

Mid-Elevation Shrub, including juniper encroachment

Vegetation treatments in the Mid-Elevation Shrub type under Alternative C (approximately 16,600 acres) would occur on about 8,700 fewer acres than under Alternative B and about 47,000 fewer acres than under Alternative D. Of the total vegetation treatments applied under Alternative C (approximately 54,920 acres), about 30% would be applied to the Mid-Elevation Shrub type (**Appendix J**, **Section I**). About 68% of the treatments occurring in the Mid-Elevation Shrub type (approximately 11,300 acres) would focus on juniper encroachment, and this would be applied to 100% of the known encroaching juniper.

With Alternative C's vegetation treatment strategy, a combination of full and limited suppression and WFU allowed in Mid-Elevation Shrub, changes in vegetation composition, structure, and ecological function would primarily occur as a result of restoration, in addition to natural successional processes. Disturbance levels proposed would maintain the overall LHC (LHC-B) over time in the Mid-Elevation Shrub type but are not extensive enough to improve LHC. Overall, in the short and long-term, the Mid Elevation vegetation type would be maintained in current LHC-B (moderately departed from historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Despite treatments, natural succession would occur creating more acres of mid-closed vegetation as shrubs are established in current early successional acres decreasing desired LHC-A at the stand level by 22% (from approximately 74,000 acres to 49,000 acres).

Uncharacteristic areas, as well as juniper encroachment would be reduced from current occupying 24% of the total vegetation type across the landscape. Though overall, reducing the acres of "uncharacteristic" and juniper encroachment are improving stand level conditions, treatments are not extensive enough to contribute to an overall improvement in LHC. With a continued lack of disturbance, even with treatments focused on juniper encroachment, juniper

encroachment is likely to increase as mid-closed acres become overabundant on the landscape the juniper becomes established. Alternative C would maintain a condition that is moderately departed from historic conditions (33- 66%) with regard to vegetation class distribution across the landscape. LHC-A could decline further, even with treatments, WFU and limited fire suppression actions. Opportunities to utilize limited AMR and WFU are anticipated to be minimal given land ownership patterns, and social/political concerns. Wildland fire frequency would continue to occur less frequently than historic, increasing the potential risk for continued juniper encroachment and threatening the health of the Shrub Steppe vegetation communities on the PFO.

At the stand level, Mid-Elevation Shrub LHC would decline over both the short and long term from current conditions. Currently, 52% of the Mid-Elevation Shrub vegetation type occurs in LHC-A composed mainly of early and mid-open successional vegetation composed of 10-25% shrub cover with a healthy native understory of grasses and forbs (**Table 4.2.5-9**). In the long-term, at the stand level, LHC-A reduces from 52% currently to 35%. Vegetation treatments applied under Alternative C would maintain the distribution of LHC at approximately 50% in the first 10 years. Because no additional treatments would be implemented in years 11-30, in 30 years LHC would decline similar to other Alternatives.

LHC-A in Mid-Elevation Shrub is characterized by a diverse herbaceous understory with moderate-to-good coverage and a shrub canopy cover that is <25%. Lack of disturbance would cause an abundance of shrub cover and juniper encroachment with lower herbaceous coverage reducing LHC-A conditions such that the trend could shift toward LHC-B or LHC-C (late/mid-closed successional).

Mountain Shrub

See *Impacts Common to All Alternatives* section.

Forest/Woodland Vegetation Communities

Table 4.2.5-19 lists the management methods that would be used under Alternative C for each of the vegetation types that comprise the Forest/Woodland Vegetation community. Treatments would be implemented on a larger scale (approximately 20,100 acres) than under Alternatives A (approximately 3,400 acres) and B (approximately 13,200 acres) (**Table 4.2.5-2**).

Table 4.2.5-19. Alternative C Vegetation Treatment Methods - Forested Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Aspen/Aspen Conifer Mix/Dry Conifer	Full	None	X	X	X	X
Wet/Cold Conifer	Full	None	X	X	X	None
Juniper	Full	None	None	None	None	None

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).

In forested types, Alternative C would aim to increase the aspen component in the areas currently dominated by conifers. Compared to other Alternatives, Alternative C would result in the most improvement in LHC in Aspen, Aspen/Conifer and Dry Conifer acres.

Treatments in Aspen/Conifer would focus on restoring forest ecosystems using prescribed fire and non-fire treatment methods. Vegetation management in the forested vegetation types under Alternative C would generally emphasize maintaining or increasing LHC-A (early successional with healthy aspen component). Treatments would also aim to reduce the potential for uncharacteristic large scale, stand replacement wildland fires. Vegetation treatments would also focus on restoring vegetation resources using chemical, planting, and mechanical treatment methods where uncharacteristic invasive species/ noxious weeds or nonnative vegetation occurs.

Aspen/Aspen Conifer Mix/Dry Conifer

With the vegetation treatment strategy proposed under Alternative C, an emphasis on full suppression and WFU not allowed, Alternative C would result in the maintenance of conditions in LHC-B (moderately departed 33-66%), similar to other Alternatives. Lack of disturbance in a historically frequent fire regime would cause a continued decline in early and mid successional vegetation where aspen is a major, healthy component. The current 45% distribution of the Aspen/Aspen Conifer Mix/Dry Conifer types occurring in LHC-A (early/mid successional with healthy aspen component) would be increased to 63% over the long term (**Table 4.2.5-11**), more than any other alternative.

Similar to Alternatives A and B, stands with a mix of aspen and Douglas fir (mid successional) would be targeted for selective mechanical treatments. Treatment would be conducted to thin and utilize Douglas-fir. Following mechanical treatment, prescribed fire would be used to reduce hazard and to prepare the site for aspen regeneration. Treatments would generally decrease conifer competition increasing the currently scare early and mid successional components across the landscape. Treatment levels proposed under Alternative C (40% of total vegetation types) are not extensive enough, however, to improve the overall LHC-B.

At the stand level, Alternative C would considerably increase the amount of desired LHC-A (early/mid successional with healthy aspen component) from current 40,000 acres to 56,900 acres. Treatment levels proposed under Alternative C would reduce the amount of LHC-C (late successional dominated by conifer) more than any other alternative (from current 49,700 to 33,400 acres). In general, stands dominated by conifer are more susceptible to insect/disease infestation, as well as uncharacteristic wildland fire so Alternative C would result in least risk of uncharacteristic wildland fire.

Wet/Cold Conifer

In Alternative C, approximately 70 acres would be treated using various methods, full suppression would be the emphasized AMR and no WFU would be allowed. See *Impacts Common to All Alternatives* section for details on effects.

Riparian

Impacts on Riparian areas under Alternative C are similar to those described under Alternative B and the other vegetation types. Vegetation treatments would occur on approximately 100 acres, but treatments that would occur in the other vegetation types (approximately 54,900 footprint

acres) would be more than 9% greater than under Alternative A, 11% less than under Alternative C, and 17% less than under Alternative D. These treatments could have direct and indirect effects on increasing the number of miles of riparian areas that could meet PFC.

Other/Vegetated Lava
Impacts on Other/Vegetated Lava would be similar to those described under Alternatives A and B. Proactive treatments would be conducted on approximately 200 acres in this vegetation type.

Impacts from Special Status Species Direction: Management actions for special status species under Alternative C would not affect vegetation management because such actions would place additional focus on restoring and rehabilitating vegetation and habitats. An emphasis would be placed on conserving vegetation and habitats in all vegetation types. Management actions to protect and enhance Special Status wildlife and plants under Alternative C would be consistent with actions to restore vegetation resources under Alternative C and would not impede actions for vegetation management that would achieve desired LHC for LHC-A. Many of the actions described under Alternatives A and B would be expanded and implemented under Alternative C. Emphasis on proactive recovery for federally listed species would also be consistent with Alternative B. However, Alternative C would not be as proactive in its treatments as Alternative B. Treatment would include the use of fire and nonfire methods but would be limited to the extent required to protect federally listed species under the ESA, or as required by Idaho BLM sensitive species management. Measures to improve and restore special status species habitat and recover species under Alternative C would be more comprehensive than under Alternatives B and D.

Management direction under Alternative C, would be consistent with conservation measures identified in the Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006) and current *Guidelines for Management of Columbian Sharp-Tailed Grouse Habitats* (Geisen and Connelly 1993).

Restoration and rehabilitation would reduce habitat fragmentation in the Shrub Steppe where sagebrush could be maintained in blocks greater than 320 acres and increase the native herbaceous understory. ES&R and restoration of areas following fire suppression that would focus on improving sagebrush canopy cover in key and source habitats, including leks, would not conflict with vegetation management under Alternative C. These treatments would be consistent with the improvement desired in the Low-Elevation Shrub, Mid-Elevation Shrub, and Mountain Shrub types.

There are approximately 513,200 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat in the PFO area. In documented breeding and brood rearing habitats and winter habitats with seasonal restrictions (beginning March 1 through June 30, and beginning December 15 through March 1, respectively) mechanical and prescribed fire vegetation treatments may require adjustments, such as timing of activity or moving the activity to a different area to avoid impacts to grouse. Site specific assessments may allow activities to take place during the restricted periods pending further NEPA analysis as appropriate.

Management of pygmy rabbit habitats would not affect sagebrush habitat management, as described for greater sage-grouse and Columbian sharp-tailed grouse. Development of an HMP

would not affect vegetation management under Alternative B and would be consistent with the management actions that would occur.

The effect of managing ferruginous hawk nesting habitat in Juniper in the Curlew area and Bear Lake Plateau would not affect Alternative C and would be consistent with the management actions that would achieve older, widely spaced Juniper trees for nesting. Locations and timing considerations that would conflict with nesting would be the same as under Alternative B.

Riparian improvements would generally be the same as those described under Alternative A, and vegetation management would not be affected by management actions to maintain habitat and reduce habitat fragmentation for the Utah valvata snail, boreal toad, northern leopard frog, white pelican, Yellowstone and Bonneville cutthroat trout, and Bear Lake endemic fish. In particular, actions that require habitat management for the Yellowstone and Bonneville cutthroats to attain the highest quality habitat would help to improve degraded riparian areas. Fencing livestock from nonfunctional streams or at-risk streams that also contain Yellowstone or Bonneville cutthroat would directly impact riparian and wetland vegetation over the long term.

Direct and indirect effects on restoration and rehabilitation of vegetation from special status plant management would be similar to those described under Alternative A. Management actions to improve vegetation could be directly affected over the long term, where restrictions would occur within a half-mile of special status plant populations. Actions that would prohibit road construction and dozer lines would reduce fragmentation of contiguous vegetation. However, limiting these methods and reducing equipment access could put less-accessible patches of contiguous vegetation at higher risk of catastrophic wildland fire. Prior to conducting vegetation treatments, management would need to consider avoidance and mitigation, especially because emergency fire suppression could affect special status plants.

Impacts from Wildland Fire Management Direction: Wildland Fire Management Direction for Alternative C includes both limited and full suppression as the AMR to wildland fires in the Low-Elevation Shrub where historically wildland fires burned infrequently. Effects from potentially allowing more wildland fire in an already departed vegetation type (fire frequency/severity departed >66%) would adversely affect LHC. Conversely, if under Alternative C, more fire is allowed in Mid-Elevation Shrub where wildland fires burned more frequently historically LHC would improve. Not allowing WFU and emphasizing full suppression in Aspen/Conifer, Mountain Shrub, and Mid-Elevation Shrub would also potentially impact LHC as these vegetation types currently need more disturbance to decrease vegetation and fire frequency/severity departure. Suppression actions (e.g., dozer lines, off-road engine use, etc.) would likely have less impact on vegetation than under Alternative C as a full suppression AMR emphasis would be used in more vegetation types than Alternatives B or D. Conversely, Alternative C would perpetuate more departure in LHC in those vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer vegetation types) if full suppression is emphasized. Impacts from Alternative C's wildland fire management strategy would occur because the lack of fire occurrence and minimal levels of treatments would continue to allow uncharacteristic vegetation to increase, juniper encroachment areas to increase, and closed canopy, late successional vegetation to increase in forested vegetation types. Impacts from wildland fire management would be the same as those described for each vegetation type above, affecting overall FRCC as described in the Wildland Fire Management section. Compared to Alternatives A and B, Alternative C would emphasis treating vegetation in juniper encroachment

areas and forested vegetation potentially improving vegetation in those areas more than other alternatives.

Impacts from Lands and Realty Direction: If only half of the Zone 4 lands available for disposal under Alternative C were actually transferred out of federal ownership, then approximately 24,950 acres would be disposed of and approximately 588,850 acres would remain in federal ownership. Lands administered by the PFO total approximately 613,800 acres, so the PFO could lose approximately 4% of its public lands from land tenure actions. Disposal of lands would be 1% less than Alternative A, 1% less than Alternative C, and 6% less than Alternative D. Long-term effects that would occur under Alternative C would be the same as described for Alternatives A and B.

Overall, combined existing, agency-designated, and priority utility corridors would have minor long-term effects on vegetation resources and would be the same as Alternative B. Restrictions other than standard stipulations would also be similar to Alternative B. All proposed projects under Alternative C would also be subject to site-specific NEPA analysis, which would further reduce impacts on vegetation and, at minimum, provide mitigation measures to protect and restore disturbed areas.

Acquisition of legal access for recreation would be the same as described under Alternative B.

The pursuit of additional withdrawals would also be the same as Alternative B.

Impacts from Livestock Grazing Direction: Livestock grazing would be available on 91% (approximately 555,340 acres) of public lands within the planning area. The availability of lands for livestock grazing would be similar to Alternative A and B, and would increase by as much as 5% over Alternative D. However, the ratio of AUMs to public lands available (.17) would be the same across all alternatives suggesting that the intensity of livestock grazing on available public lands would remain unchanged from current conditions.

Impacts from livestock grazing on public land would not occur on 58,460 acres under this alternative. The increased acreage in unavailable status from Alternative A is attributed in part to changing the status of all unpermitted allotments totaling approximately 7,500 acres, from available to unavailable. However, the majority of the increased acreage in unavailable status is due to land tenure adjustments.

In addition, impacts from livestock grazing would be reduced by discontinuing allotted grazing within the BSD and limiting grazing use to trailing only.

Impacts from Minerals and Energy Direction: The majority of lands within the PFO would be open for consideration of Mineral Leasing, permitting, and claims. Although large acreages would be opened, only limited exploration and development are anticipated to occur as shown in **Table 4.3.4-1**. **Table 4.2.5-12** compares the number of acres potentially impacted due to Fluid Minerals leasing where surface occupancy would be allowable and where NSO restrictions. As described under Alternatives A and B, potential impacts on vegetation resources are directly associated with the total area open and available for Mineral Materials. Although the overall extent of surface disturbance is assumed to be similar under all alternatives, the locations are not all known as future exploration would be necessary to delineate the location of valuable minerals amenable to development. The general effects of mineral exploration and development on

vegetation resources are discussed in *Section 4.2.5.3, Impacts Common to All Alternatives*. The general effects of mineral exploration and development on vegetation resources common to Alternatives B, C, and D are discussed under Alternative B. This section discusses impacts on vegetation resources based on the differences between Alternative C and the other alternatives.

Approximately 602,600 acres (98%) would remain open for the leasing of Fluid Materials in Alternative C. Nondiscretionary closures and stipulations for NSO would total approximately 358,500 acres, or approximately 255,300 acres would be open to Fluid Minerals leasing with no surface restrictions (**Table 4.2.5-12**). Compared to Alternatives A and D, this would be a 69% decrease in potential acres disturbed by oil, gas, and geothermal development. Compared to Alternative B, there would be a 56% decrease in potential acres disturbed.

Similar to Alternatives A, B, and D, no areas of Low-Elevation Shrub would be completely closed to consideration for Fluid Mineral development under Alternative C. About 34% of the Low-Elevation Shrub (approximately 12,800 acres) would be open for consideration of Fluid Mineral Leasing with potential surface disturbance from exploration and development activities. Compared to Alternatives A and D, this would be an 43% decrease, and a 42% decrease compared to Alternative B.

Impacts on Perennial Grass and Seedings for areas open to consideration for Fluid Mineral Leasing would be the same as described under Alternative A.

About 99% (approximately 140,800 acres) of Mid-Elevation Shrub under Alternative C would be open to leasing consideration, which is comparable to all other alternatives. About 36% (approximately 51,600 acres) of this vegetation type would be open where surface occupancy would be allowable; about 63% (approximately 89,200 acres) of this vegetation type would be open to Fluid Mineral Leasing with NSO restrictions on exploration and development. Compared to Alternatives A, B and D, areas open where surface occupancy would be allowable would decrease 23%, and areas open to consideration with NSO restrictions would increase 21%.

Impacts on Mountain Shrub from areas open to consideration of Fluid Mineral Leasing under Alternative C are similar to those impacts described for Alternative A, but, under Alternative C, more areas would be open with NSO restrictions.

Impacts on Juniper from areas open to consideration of Fluid Mineral Leasing under Alternative C would be the same as described under Alternative A.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer from areas open to consideration of Fluid Mineral Leasing under Alternative C would be the same as described under Alternative B.

Impacts on Wet/Cold Conifer from areas open to consideration for Fluid Mineral Leasing under Alternative C would be the same as described for Alternative A.

About 100% of Riparian (approximately 6,600 acres) would be open to consideration of Fluid Mineral Leasing under Alternative C, and would be approximately 6,600 acres comparable to all alternatives. All Riparian open to consideration of leasing would have NSO restrictions.

About 100% of Other/Vegetated Lava (about 16,600 acres) would be open to consideration of Fluid Mineral Leasing under Alternative C, and would be comparable to all alternatives. About

33% (approximately 5,500 acres) would be open to consideration of leasing where surface occupancy would be allowable, and 67% (about 11,100 acres) would be open with NSO restrictions. Compared to Alternative A, this would be a 36% decrease in areas open where surface occupancy would be allowable, and a 39% increase in areas with NSO restrictions. Compared to Alternative B, this would be a 5% decrease in areas open to where surface occupancy would be allowable, and a 3% increase in areas with NSO restrictions. Compared to Alternative D, this would be a 33% decrease in areas open where surface occupancy would be allowable, and a 33% increase in areas with NSO restrictions.

In Alternative C, approximately 582,400 acres (95%) of public lands would be open to Solid Leasable Minerals (**Table 4.2.5-13**). Total nondiscretionary and discretionary closures would be approximately 31,400 acre (< 1%). Impacts on vegetation would be the same as described under Alternative B.

In Alternative C, approximately 544,800 acres (89%) of public lands would be open to Mineral Materials (**Table 4.2.5-14**). Closures are associated with nondiscretionary closures and withdrawals for power- and water-related facilities and for historic trails. The impact on vegetation from closures would be approximately 69,000 acres (11%). Compared to Alternative A, this would be a 111% increase in acres open to consideration for disposal. Compared to Alternative B, this would be a 119% increase, and a 316% increase compared to Alternative D.

Impacts on each vegetation type resulting from Mineral Materials are described under Alternative B.

About 93% of Low-Elevation Shrub (approximately 35,400 acres) under Alternative C would be open to consideration of Mineral Material disposal activities. Compared to Alternative A, this would be a 5% decrease, and a 6% decrease compared to Alternatives B and D.

About 94% of Perennial Grass (approximately 60,900 acres) under Alternative C would be open to consideration of Mineral Material disposal activities. Compared to Alternatives A and B, this would be a 5% decrease in areas open to consideration of disposal activities, and a 6% decrease compared to Alternative D.

Impacts on Seedings (approximately 100%) would be the same for all alternatives.

About 89% of the Mid-Elevation Shrub (approximately 126,000 acres) under Alternative C would be open to for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mid-Elevation Shrub would decrease 8%, increase 7% compared to Alternative B, and decrease 10% compared to Alternative D.

About 90% of Mountain Shrub (approximately 168,200 acres) under Alternative C would be open for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mountain Shrub would decrease 7%, decrease 6% compared to Alternative B, and decrease 8% compared to Alternative D.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer would be the same as described under Alternative A.

Impacts on Juniper from areas open to consideration for Mineral Material disposal activities under Alternative C would be the same as described under Alternative A, and the area open would be the same in all alternatives (approximately 99%).

About 86% of the Wet/Cold Conifer (approximately 700 acres) under Alternative C would be open for consideration of Mineral Material disposal activities. This would be comparable to Alternative B, but a 14% decrease from Alternatives A and D.

About 43% of Riparian (approximately 6,500 acres) under Alternative C would be open for consideration of Mineral Material disposal, where accessible and economically viable deposits of sand and gravel are located. Compared to Alternative A, this would be a 19% decrease, a 55% decrease compared to Alternatives B and D.

Compared to Alternative A, areas open for consideration of Mineral Material disposal activities in Other/Vegetated Lava under Alternative C would decrease 34%, decrease 39% compared to Alternative B, and decrease 50% compared to Alternative D.

In Alternatives B and C, approximately 564,900 acres (92%) of public lands would be open to Locatable Materials leasing (**Table 4.2.5-15**). Total nondiscretionary closures and mineral entry withdrawals would be approximately 48,900 acres. Compared to Alternatives A and D, this would be a 57% increase in acres open to mining claim location. Impacts for each vegetation type are described under Alternative B.

Impacts from Recreation Direction: Impacts from recreation, including OHVs, would be the same as described under Alternative B. As under Alternative B, established management and recreation-related developments within the SRMAs would be emphasized, thereby indirectly providing additional protection to vegetation resources in surrounding areas. Notable differences from Alternative B are the addition of 430 acres of the Campground SRMA and livestock use in RNAs would not be available.

Impacts from Special Designation Direction: Impacts would be similar to those described under Alternative B.

4.2.5.7 Alternative D

Impacts from Vegetation Direction:

Shrub Steppe Communities

Table 4.2.5-20 lists the vegetation treatment methods that would be used under Alternative D for each of the vegetation types that comprise the Shrub Steppe community.

Alternative D proposes treating the most footprint treatment acres (162,000 acres) to maximize commodity production and increase economic opportunities. In the sagebrush steppe, 100% of the uncharacteristic vegetation (e.g., cheatgrass and crested wheatgrass) would be treated to convert/restore these acres to native vegetation, and 100% of the juniper encroachment acres in Mid-Elevation Shrub would be treated improving LHC more than any other Alternative.

Table 4.2.5-20. Alternative D Vegetation Treatment Methods - Shrub Steppe Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Low-Elevation Shrub	Full	None	X	X	X	X
Mid-Elevation Shrub (including juniper encroachment)	Limited	X	X	X	X	X
Mountain Shrub	Limited	X	X	X	X	X

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).

Vegetation management strategies under Alternative D would encourage full suppression (initial attack) as the AMR in Low-Elevation Shrub, and would encourage limited suppression (monitoring or confinement) as the AMR in all other shrub vegetation types. Alternative D would designate all Mid-Elevation and Mountain Shrub acres as suitable for WFU and would emphasis limited suppression as the AMR to decrease wildland fire management suppression costs and increase suppression efficiencies. Alternative D would likely result in more wildland fire acres burned than other alternatives in shrub types where fire historically burned more frequently (Mid-Elevation Shrub, Mountain Shrub). Management direction proposed under Alternative D would show the most increase in stand level LHC on more acres within the shrub steppe than any other alternative by decreasing fire frequency/severity departure in all shrub steppe vegetation types and treating more acres than other alternatives.

Low-Elevation Shrub and Perennial Grass/Seedings

Alternative D would treat about 44% of the Low-Elevation Shrub type, focusing on converting 100% of the perennial grass/seedings to native grass/forb vegetation within 30 years. Implementation of intensive treatments, using multiple treatments on a footprint acre (prescribed fire, mechanical, chemical and seeding) could have short term impacts reducing site productivity. Conversely, treatments would reduce the long-term risk of uncharacteristic wildland fire in Low-Elevation Shrub. The long-term outcome of such extensive treatments would exceed all other alternatives because 100% of the total 144,800 acres of Low-Elevation Shrub would occur in LHC-A (mid/late successional vegetation with 10-25% shrub cover and healthy understory). All alternatives, including Alternative D where treatments are more intensive, would improve the overall LHC condition from LHC B (moderately departed 33-66%) to LHC A (within historic range <33% departed) (**Table 4.2.5-8**).

At the stand level, Alternative D would entirely eliminate the acres of uncharacteristic LHC-C unlike no other alternative. Given Alternative D, successional class distribution across the landscape would not be desirable even though LHC A conditions would be reached for the overall vegetation type. With lack of treatments proposed in late/mid successional stands and a

full suppression AMR emphasis, disturbance would be limited so early successional vegetation would become scarce across the landscape. In the ensuing 20 years following treatment, natural succession would create 5 times the amount of LHC-A disbursed across the landscape (**Table 4.2.5-8)** but would leave early successional vegetation absent or in short supply. Under these conditions, the potential for uncharacteristic wildland fires would be reduced as acres where highly flammable grasses dominate the landscape would be limited.

Alternative D would provide the largest improvements in LHC and the highest percentage of LHC-A compared to Alternatives A, B, and C. The increased potential short-term impacts and higher costs to health and safety, staffing, disturbance to wildlife, and temporary removal of livestock grazing resulting from the intensive treatment of 42,100 acres of uncharacteristic crested wheatgrass would be greater than those under Alternatives A, B, and C, but would be realized in overall LHC improvements in the Low-Elevation vegetation type.

Mid-Elevation Shrub, including juniper encroachment

Vegetation treatments in the Mid-Elevation Shrub type under Alternative D (approximately 64,000 acres) would occur on approximately 8,800 more acres when compared to Alternative B and approximately 48,000 more acres when compared to Alternative C. Treatments occurring in the Mid-Elevation Shrub type would focus on juniper encroachment (100% of the known encroaching juniper would be treated). Alternative D would target treatments in the mid-closed successional class where juniper is just beginning to become established and would also apply treatment to all of the uncharacteristic vegetation. This treatment strategy results in the greatest improvement in Land Health Class when compared to other alternatives.

With Alternative D's vegetation treatment strategy, an emphasis on limited suppression and WFU allowed in Mid-Elevation Shrub, changes in vegetation composition, structure, and ecological function would primarily occur as a result of restoration, in addition to natural successional processes. Disturbance levels proposed would maintain the overall LHC (LHC-B) over time in the Mid-Elevation Shrub type but are not extensive enough to improve LHC. Overall, in the short and long-term, the mid Elevation vegetation type would be maintained in current LHC-B (moderately departed from historic) assuming wildland fire occurrence, wildland fire acres burned, ES&R success, and other management practices are similar to the past 30 years. Treatments and natural succession would occur creating more acres of mid-closed vegetation as shrubs are established in current early successional acres decreasing desired LHC-A at the stand level from approximately 74,000 acres to 64,000 acres. Uncharacteristic areas, as well as juniper encroachment would be eliminated. Though overall, reducing the acres of "uncharacteristic" and juniper encroachment are improving stand level conditions, treatments are not extensive enough to contribute to an overall improvement in LHC. LHC-A could decline further, even with WFU and limited fire suppression actions. Opportunities to utilize limited AMR and WFU are anticipated to be minimal given land ownership patterns, and social/political concerns. Wildland fire frequency would continue to occur less frequently than historic, increasing the potential risk for continued juniper encroachment and threatening the health of the Shrub Steppe vegetation communities on the PFO.

At the stand level, Mid-Elevation Shrub LHC would improve over the short-term but decline over the long term from current conditions. Currently, 52% of the Mid-Elevation Shrub vegetation type occurs in LHC-A composed mainly of early and mid-open successional vegetation composed of 10-25% shrub cover with a healthy native understory of grasses and

forbs (**Table 4.2.5-9**). Vegetation treatments applied under Alternative D would cause the distribution of LHC classes to increase over the short term from the current 52% LHC-A to 100% LHC-A in the first 10 years. Because no additional treatments would be implemented in years 11-30, in 30 years LHC would decline to 45% similar to other Alternatives. Without disturbance in years 11-30, early/mid-open successional types would become scarce on the landscape and mid-closed (>25% shrub cover with juniper encroachment beginning) would become over-abundant. Proactively treating 42% of the Mid-Elevation Shrub type (approximately 6,400 acres annually) would reduce wildland fire risk to the shrub component because limited suppression, WFU and vegetation treatments would reduce encroaching juniper and uncharacteristic vegetation where fuel loads have increased to levels that would result in uncharacteristic wildland fire size and severity. Treatments would target mid-closed and late successional vegetation, focusing on treating 100% of the encroaching juniper occurring in the Mid-Elevation Shrub type.

LHC-A in Mid-Elevation Shrub is characterized by a diverse herbaceous understory with moderate-to-good coverage and a shrub canopy cover that is <25%. Lack of disturbance would cause an abundance of shrub cover and juniper encroachment with lower herbaceous coverage reducing LHC-A conditions such that the trend could shift toward LHC-B or LHC-C (late/mid-closed successional).

Short- and long-term trends would favor the increase in mountain big sagebrush and bitterbrush. However, in many instances Mid-Elevation Shrub stands are in transition, and, as has been observed throughout the Interior Columbia Basin, juniper has been aggressively invading Shrub Steppe communities during the past 120 years and continues to do so in the present (Miller et al. 2000). The risk of further juniper encroachment on the Mid-Elevation Shrub type under Alternative D would continue to occur, but would be less than Alternative A, B or C. Such encroachment indicates a decrease in diversity, and results in a complete decrease in the early perennial grass and herbaceous understory. These conditions would be followed by the continued increase in shrubs and tree cover. Accompanying the reduction in the understory is also the risk of reduction in the sagebrush and bitterbrush components.

Mountain Shrub

See *Impacts Common to All Alternatives* section.

Forest/Woodland Vegetation Communities

Table 4.2.5-21 lists the management methods that would be used under Alternative D for each of the vegetation types that comprise the Forested Vegetation community.

In forested vegetation types, Alternative D proposes thinning areas currently dominated by conifers to minimize insect/disease infestation and maximize merchantable timber production. Since the management strategy under Alternative D would further decrease the early successional/aspen component in the Aspen/Conifer types, Alternative D is the only Alternative that would result in a decrease in LHC in the long-term in Aspen, Aspen/Conifer and Dry Conifer acres. The shift in emphasis to production of goods and services in the forested types would negatively impact LHC in forested vegetation types. At the stand level, Alternative D would cause a greater decline in LHC than any other alternative, decreasing the desired LHC-A (early/mid successional vegetation with health aspen component) in Aspen/Conifer from a current 45% to 14% across the landscape.

Table 4.2.5-21. Alternative D Vegetation Treatment Methods - Forested Vegetation Types

Vegetation Type	Treatment Methods					
	AMR[1]	Wildland Fire Use	Prescribed Fire	Mechanical	Chemical	Seeding
Aspen/Aspen Conifer Mix/Dry Conifer[2]	Limited	X	X	X	X	X
Wet/Cold Conifer	Limited	None	X	X	X	X
Juniper	Limited	X	None	None	None	None

[1] AMR would be applied to manage all wildland fires. AMR with FULL suppression emphasis would be initial attack to stop fire spread and put out wildland fire at least cost. Actions taken would always be consistent with firefighter and public safety and values to be protected. AMR with LIMITED emphasis would be monitoring and confinement actions that use natural barriers, observation, and contingency/mitigation measures to manage wildland fire commensurate with values at risk and public/firefighter safety (BLM 2006a).

Vegetation management strategies under Alternative D would encourage limited suppression (monitoring or confinement) as the AMR in all forest vegetation types and would designate Aspen/Conifer as suitable for WFU. Alternative D would emphasis limited suppression as the AMR to decrease wildland fire management suppression costs and increase suppression efficiencies. Allowing WFU and emphasizing limited suppression would not create enough disturbance across the landscape to increase LHC forested vegetation types.

Aspen/Aspen Conifer Mix/Dry Conifer

With the vegetation treatment strategy proposed under Alternative D, an emphasis on limited suppression and WFU allowed, Alternative D would result in the maintenance of conditions in LHC-B (moderately departed 33-66%), similar to other Alternatives. Lack of disturbance in a historically frequent fire regime would cause a continued decline in early and mid successional vegetation where aspen is a major, healthy component. The current 45% distribution of the Aspen/Aspen Conifer Mix/Dry Conifer types occurring in LHC-A (early/mid successional with healthy aspen component) would be substantially decreased over both the short-term (in 10 years decreased to 29%) and the long-term (in 30 years decreased to 14%) (**Table 4.2.5-11**).

Unlike other alternatives, stands dominated by conifer (late successional) or stands with a mix of aspen and Douglas fir (mid successional) would be targeted for selective mechanical treatments. Treatment would be conducted to thin and utilize Douglas-fir, but would aim to maintain the Douglas-fir component for future commercial use. Following mechanical treatment, prescribed fire would be used to reduce hazard and to prepare the site for aspen regeneration. Treatments would generally thin the conifer component, creating or maintaining mid-successional vegetation. Treatments under Alternative D would not favor the re-establishment of aspen across the landscape. These treatment strategies would cause a decline in the stand level LHC within Aspen/Conifer vegetation types.

At the stand level, Alternative D would decrease the amount of desired LHC-A (early/mid successional with healthy aspen component) by 3 times (from current 40,600 acres to 12,600 acres), whereas all other Alternatives would increase LHC at the stand level. Similar to

Alternative C, with treatment levels proposed, WFU and limited suppression AMR, LHC-C (late successional dominated by conifer) would decline. In general, stands dominated by conifer are more susceptible to insect/disease infestation, as well as uncharacteristic wildland fire so Alternative D would result in an increased fire hazard and risk when compared to other alternatives.

Wet/Cold Conifer
In Alternative D, approximately 70 acres would be treated using various treatment methods, including WFU. Vegetation dynamics are the same for all Alternatives; see *Impacts Common to All Alternatives* section.

Riparian
Impacts on Riparian areas under Alternative D would be similar to those described in this alternative for the other vegetation types. Vegetation treatments would be the same as under Alternative C and would involve approximately 100 acres. However, treatments that would occur in the other vegetation types in this alternative (approximately 162,200 footprint acres) would be more than 26-fold greater than under Alternative A, 1.3-fold greater than under Alternative B, and 3-fold greater than under Alternative C. These treatments could have direct and indirect effects on increasing the number of miles of Riparian areas that could meet PFC.

Other/Vegetated Lava
Impacts on Other/Vegetated Lava would be similar to those described under Alternatives A, B, and C. Proactive treatments would be conducted on approximately 200 acres in this vegetation type, and treatments would include prescribed fire, WFU, and chemical, mechanical, and seeding methods.

Impacts from Special Status Species Direction: Impacts from management action for special status species under Alternative D are similar to Alternative A. Special status species management would affect vegetation management in this alternative by focusing treatments on special status species, including greater sage-grouse and Columbian sharp-tailed grouse.

Impacts from Wildland Fire Management Direction: Wildland Fire Management Direction for Alternative D includes full suppression as the AMR to wildland fires in all vegetation types that historically burned infrequently (Low-Elevation Shrub, Wet/Cold Conifer, Natural Juniper) and limited suppression as the AMR in all vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer), and designates 469,000 acres as suitable for WFU in those vegetation types that historically burned frequently. Actions to manage wildland fire would rely on less aggressive suppression tactics in those vegetation types needing more disturbance and would rely on aggressive fire suppression tactics and strategies, aimed at controlling wildland fires, in those vegetation types that need less disturbance. Therefore, suppression actions (e.g., dozer lines, off-road engine use, etc.) would likely have less impact on vegetation than Alternative A or C. Similar to Alternative B, Alternative D, would perpetuate less departure in LHC in those vegetation types that historically burned frequently (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer vegetation types). Conversely, Alternative D would maintain current LHC in those vegetation types that historically burned less frequently (Low-Elevation Shrub, Wet/Cold Conifer, Natural Juniper, Rock/Vegetated Lava). Impacts from this wildland fire management strategy would occur because the lack of fire occurrence and levels/types of treatments would allow closed canopy, late successional

vegetation to increase, particularly in Aspen/Conifer vegetation types. Impacts from wildland fire management would be the same as those described for each vegetation type above, affecting overall FRCC as described in the Wildland Fire Management section.

Impacts from Lands and Realty Direction: If only half of the Zone 4 lands available for disposal under Alternative D were actually transferred out of federal ownership, then approximately 60,700 acres would be disposed of and approximately 553,100 acres would remain in federal ownership. Lands administered by the PFO total approximately 613,800 acres, so the PFO could lose approximately 10% of its public lands through land tenure actions. The loss of 10% of the total PFO land base, when compared to the loss of 5% under Alternatives A and B, and 4% under Alternative C would have greater long-term effects due to the greater reduction of lands in federal ownership. In turn, the advantages of land tenure adjustment under Alternatives B and C would not occur under Alternative D because the BLM would retain a smaller percentage (at least 90%) of public land, which would be less advantageous in, for example, consolidating public lands into large contiguous tracts that could be managed more efficiently and improve LHC.

Overall, combined existing, agency-designated, and priority utility corridors would have more long-term effects on vegetation resources than Alternatives A, B, and C. Potential impacts would be more than Alternatives A, B and C because there would be no exclusion areas under Alternative D. The primary effects on vegetation from LUAs have been discussed under Alternatives A and B. Impacts would be the same as in all alternatives and include vegetation trampling and removal, soil compaction and erosion from wind and rills, and invasive species/noxious weed invasions. All proposed projects would also be subject to site-specific NEPA analysis, which would further reduce impacts on vegetation and, at minimum, provide mitigation measures to protect and restore disturbed areas.

Acquisition of legal access for recreation would be the same as described under Alternative B. Similar to Alternative A, new access routes, route alignment, and maintenance activities would likely to result in some direct and indirect impacts on native vegetation resulting from trampling, plant collection, and the introduction of invasive species/noxious weeds.

Similar to Alternative A, BLM would pursue and finalize additional withdrawals on about 1,500 acres for RNA designation, which could result in some indirect protection for some unique vegetative communities, though the overall long-term contribution to vegetative health would be small, and 400 acres less than Alternatives B and C.

Impacts from Livestock Grazing Direction: Livestock grazing would be available on 86% (approximately 527,900 acres) of public lands within the planning area. The availability of lands for livestock grazing would be at least a 6% decrease from Alternatives A, B and C. However, the ratio of AUMs to public lands available (.17) would be the same across all alternatives suggesting that the intensity of livestock grazing on available public lands would remain unchanged from current conditions.

Impacts from livestock grazing on public land would not occur on 85,980 acres under this alternative. The majority of the increased acreage in unavailable status is due to land tenure adjustments.

Impacts from livestock grazing would be reduced by discontinuing allotted grazing within the BSD and limiting grazing use to trailing only.

Impacts from Minerals and Energy Direction: Table 4.2.5-12 compares the number of acres potentially impacted due to Fluid Minerals leasing where NSO restrictions occur and where surface occupancy is allowable. As described under Alternatives A, B, and C, potential impacts on vegetation resources are directly associated with the total area open and available for Mineral Material leasing. The majority of lands within the PFO would be open for consideration of Mineral Leasing, permitting, and claims. Although large acreages would be opened, only limited exploration and development are anticipated to occur as shown in **Table 4.3.4-1**. Although the overall extent of surface disturbance is assumed to be similar under all alternatives, the locations are not all known as future exploration would be necessary to delineate the location of valuable minerals amenable to development. The general effects of mineral exploration and development on vegetation resources are discussed in *Section 4.2.5.3, Impacts Common to All Alternatives*. The general effects of mineral exploration and development on vegetation resources common to Alternatives B, C, and D are discussed under Alternative B. This section discusses impacts on vegetation resources based on the differences between Alternative D and the other alternatives.

Similar to Alternatives A, B, and C, no areas of Low-Elevation Shrub would be completely closed to consideration for Fluid Mineral development under Alternative D. Impacts on Low-Elevation Shrub would be the same as described under Alternative A.

Impacts on Perennial Grass and Seedings for areas open to consideration for Fluid Mineral Leasing under Alternative D would be the same as described under Alternative A.

About 99% (approximately 140,800 acres) of Mid-Elevation Shrub under Alternative D would be open to leasing consideration, which is comparable to all other alternatives. Impacts on Mid-Elevation Shrub would be the same as described under Alternative A.

Impacts on Mountain Shrub and Juniper from areas open to consideration for Fluid Mineral Leasing under Alternative D would be the same as described under Alternative A.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer from areas open to consideration for Fluid Mineral Leasing under Alternative D would be the same as described under Alternative A.

Impacts on Wet/Cold Conifer from areas open to consideration for Fluid Mineral Leasing under Alternative D would be the same as described under Alternative A.

In Alternative D, approximately 597,500 acres (97%) of public lands would be open to consideration of Solid Mineral Leasing (**Table 4.2.5-13**). Total nondiscretionary and discretionary closures would be approximately 16,300 acres. The acreage open to solid Mineral Leasing would be comparative across alternatives. Compared to Alternatives B and C, Alternative D would be an 3% increase in acres open for consideration of Solid Mineral Leasing. Compared to Alternative A, this would be a 1% increase in acres open for leasing. Similar to other alternatives, the closures would be primarily due to the presence of WSAs, ACECs and RNAs.

About 99% (approximately 37,800 acres) of Low-Elevation Shrub under Alternative D would be open to consideration for Solid Mineral Leasing. This would be comparable to Alternatives B and C, and an 8% increase compared to Alternative A.

About 98% of the Mid-Elevation Shrub (approximately 139,300 acres) would be open to consideration of Solid Mineral Leasing under Alternative D, which would be comparable to Alternative A. Compared to Alternatives B and C, this would be a 3% increase.

About 98% of Mountain Shrub (approximately 183,100 acres) under Alternative D would be open to consideration of Solid Mineral Leasing. This would be about a 3% increase over Alternatives B and C, but comparable to Alternative A.

About 99% (approximately 25,500 acres) of Juniper under Alternative D would be open to consideration of Solid Mineral Leasing. This would be comparable to Alternatives A, B, and C.

About 91% (approximately 79,000 acres) of the combined Aspen/Aspen Conifer Mix/Dry Conifer under Alternative D would be open to consideration for Solid Mineral Leasing. Compared to Alternatives A, B, and C, the change would be about 1%.

About 98% of Riparian (approximately 6,500 acres) under Alternative D would be open to consideration of Solid Mineral Leasing and would be comparable to all alternatives.

About 96% of Other/Vegetated Lava (approximately 15,900 acres) under Alternative D would open to consideration of Solid Mineral Leasing. This would be a 18% increase compared to Alternatives B and C, and a 3% decrease compared to Alternative A.

Impacts on each vegetation type resulting from Solid Leasable Minerals would be similar to impacts described under Alternative B.

In Alternative D, approximately 597,500 acres (97%) of public lands would be open to Mineral Materials (**Table 4.2.5-14**). Closures would be associated with nondiscretionary closures and withdrawals for power- and water-related facilities and for historic trails. The impact on vegetation from closures would be approximately 16,600 acres (3%). Compared to Alternatives A, B, and C, the acres that would be open to consideration of Mineral Material disposal under Alternative D would increase 3%.

Impacts on each vegetation type resulting from Mineral Materials are described under Alternative B.

About 99% of Low-Elevation Shrub (approximately 37,800 acres) under Alternative D would be open to consideration of Mineral Material disposal activities. Impacts would be the same as described under Alternative B.

About 100% of Perennial Grass (approximately 64,600 acres) under Alternative D would be open to consideration of Mineral Material disposal activities. Compared to Alternatives A and B, this would be a 2% increase in areas open to consideration of disposal activities, and a 6% increase compared to Alternative C.

Impacts on Seedings (approximately 100%) would be the same for all alternatives.

About 98% of the Mid-Elevation Shrub (approximately 139,300 acres) under Alternative D would be open to for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mid-Elevation Shrub would increase 2%, increase 7% compared to Alternative B, and decrease 10% compared to Alternative D.

About 90% of Mountain Shrub (approximately 168,200 acres) under Alternative D would be open for consideration of Mineral Material disposal activities. Compared to Alternative A, areas open in Mountain Shrub would decrease 3%, decrease 6% compared to Alternative B, and increase 11% compared to Alternative C.

Impacts on Aspen/Aspen Conifer Mix/Dry Conifer under Alternative D would be the same as described under Alternative A.

Impacts on Juniper from areas open to consideration for Mineral Material disposal activities under Alternative D would be the same as described under Alternative A, and the area open would be the same in all alternatives (approximately 99%).

About 100% of the Wet/Cold Conifer (approximately 700 acres) under Alternative D would be open for consideration of Mineral Material disposal activities. Impacts would be the same as described under Alternative A.

About 98% of Riparian (approximately 6,500 acres) under Alternative D would be open for consideration of Mineral Material disposal activities where accessible and economically viable deposits of sand and gravel are located. Impacts would be the same as described under Alternative B.

Compared to Alternative A, areas open for consideration of Mineral Material disposal activities in Other/Vegetated Lava (approximately 15,900 acres) under Alternative D would increase 30%, increase 20% compared to Alternative B, and increase 99% compared to Alternative C.

In Alternative D, approximately 582,600 acres (94%) of public lands would be open to location of mining claims (**Table 4.2.5-15**). Total nondiscretionary closures and mineral entry withdrawals would be approximately 31,200 acres. Impacts on vegetation from areas that would be open to location of mining claims are described under Alternative A.

Impacts from Recreation Direction: Impacts from recreation under Alternative D would be comparable to Alternatives B and C. However, the Oneida Narrows SRMA would not be designated. Not designating Oneida Narrows as an SRMA could increase the impacts on vegetation as OHV expands to the surrounding areas. In Alternative D, issues identified with emerging recreation demands and resource damage would be addressed similarly to Alternatives B and C, all OHV areas currently open or not designated (approximately 422,600 acres) would be limited to designated routes. In the interim, until the travel management planning process is complete, limited areas would allow travel on existing routes. Similar to Alternative B, open areas could be designated through the travel management plans. Alternative D would consider individual areas no larger than 320 acres each as being open to OHV use, compared to 80 acres under Alternatives B or C, which would expand OHV opportunities and would have a long-term effect on vegetation.

Impacts from snowmobiling activities would be similar to those described under Alternative B, except that Alternative D would not restrict snowmobiles from the Pocatello SRMA, a reduction of approximately 33,400 acres.

Impacts from Special Designations Direction: Impacts from special designations under Alternative D would be similar to those described under Alternative A.

4.2.5.8 Cumulative Impacts

The cumulative impacts assessment area for vegetation is the boundary of the planning area. As a result, the area represents a diverse landscape; and unique vegetation communities exist in some areas. Effects of BLM actions from vegetation treatments on vegetation communities on public lands administered by the BLM within the planning area are presented above.

Past and Current Actions: The primary past actions that affected vegetation were human-caused, surface-disturbing and disruptive actions including historic forestry and minerals and energy activities, livestock grazing practices, and recreation. Wildland fires and fire suppression activities have also contributed to the cumulative effects on LHC. Surface disturbances have affected only a small percentage of the total area within the planning area. Past livestock grazing practices and fire suppression, however, have been major contributors to current vegetation within the planning area. Partially due to these conditions, increasing fuel loads and the spread of invasive and noxious weeds have put pressure on vegetation communities in some localized areas. These conditions have accentuated the need for prompt and effective restoration treatment to reduce the risk of converting or losing some of these vegetation types (e.g., Low-Elevation Shrub) and to shift the distribution of short- and long-term LHC classes in favor of LHC-A by decreasing LHC-C.

Present actions affecting vegetation composition and ecological health include Wildland Fire Management, Livestock Grazing, Fish and Wildlife, and Special Status Species management, Soils and Water Resources management, Lands and Realty land tenure adjustment, Recreation, and Minerals and Energy development. These various actions have been addressed here in Section 4.2.5. Vegetation is also affected by factors largely outside the BLM's management, such as drought conditions, insects and disease, occurrence of wildland fires, livestock grazing, minerals and energy development, and the introduction of invasive species/noxious weeds. These occur in conjunction with similar disturbances on adjacent or nearby Caribou National Forest, Tribal, State of Idaho, and private lands.

Future Actions: Most of the interrelated projects have individually localized, but cumulatively widespread, effects on watershed function and ecological health, depending on the nature and areal extent of the disturbances involved. Timber harvesting, livestock grazing, minerals and energy activities, lands and realty ROW, and recreation uses would have a cumulative effect on groundwater and surface water resources. On a short-term basis, all alternatives would tend to add to such impacts, but on a long-term basis, the vegetation treatments associated with improvement in the distribution of desirable LHC classes (LHC-A and LHC-B) should more than offset the effects of the interrelated projects. The expectation of improved conditions, however, could be delayed or reduced by extended periods of drought, major insect infestations, or disease outbreaks. In other cases, insects and disease could help in meeting management goals.

In all the RMP alternatives, varying degrees of disturbance would occur on these communities and would depend on the level of development activity projected for each alternative. Most cumulative effects on vegetation within the cumulative impact area would also result from surface-disturbing and disruptive activities on private, state, and other federal lands that remove vegetation for mineral development, roads, pipelines, facilities, livestock grazing improvements, and dispersed recreation. Vegetation treatments in the form of prescribed fire might also affect vegetation resources, but those treatments would focus on improving vegetation and, likely, fish and wildlife values. All effects would depend on the level and timing of activities and whether the level of activity within the cumulative impact area outpaces the success of rehabilitation and restoration efforts in disturbed areas.

Impacts are less likely if varied spacing of activities, rehabilitation, restoration, and reclamation and revegetation efforts (from minerals and energy activities) occur. However, effects are likely to be long term, even with successful revegetation, because most of the native shrub communities (e.g., sagebrush) that would be affected would require more than 20 years to reestablish.

Mineral development would have a number of effects on vegetation resources through the removal of vegetation by the construction of roads, pipelines, and other production facilities. Areas of intense development would cause more severe localized impacts on vegetative resources. Overall, the level of disturbance would be small, compared with the amount of total vegetative resources within the cumulative impact area, because most minerals and energy development would be limited due to the generally small concentration of minerals and energy resources that would be available and the economic viability to develop it. Reclamation of construction impacts in areas not needed for long-term operation (such as roads) and of abandoned mine sites and roads would begin to increase during the 20 years of the planning period, leading to some reduction of overall disturbance. The implementation of BLM's mitigation guidelines, restrictions on surface use, continued implementation of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a), desired LHC objectives, and monitoring efforts would protect vegetative resources on public land and would help reduce overall effects.

Vegetation treatments would have varying degrees of short- and long-term effects on vegetation types. Each alternative treats vegetation to achieve a balanced range of canopy cover that would result in LHC that favor LHC-A. Improved distribution of vegetation in LHC-A would result in conditions that are more resilient and resistant to wildland fire and improve ecological functioning. Dense canopy cover and an overabundance of uncharacteristic vegetation would leave vegetation more susceptible to wildland fire disturbances that may be outside the historical range of variability. For example, Shrub Steppe vegetation types that have a predominance of acres that are greater than 15% canopy cover are increasingly at risk of having catastrophic or uncharacteristic wildland fire outside the historic fire disturbance regime.

Alternative A would have the lowest level of human intervention when conducting treatments; whereas, Alternative D would affect the greatest extent of public lands. The trade-off would be that continued use of fire suppression and post-fire ES&R as the principle forms of vegetation treatment under Alternative A would largely serve as reactive responses in shifting LHC to LHC-A. Though natural succession would largely achieve desired LHC-A in both the short and long term, it would generally be lower than in either Alternatives B or D, especially for the Low-

Elevation, Mid-Elevation, and Aspen/Aspen Conifer Mix/Dry Conifer types (**Table 4.2.5-1)**. All alternatives would achieve relatively the same desired LHC-A for the Mountain Shrub and Wet/Cold Conifer types. Encroaching juniper would not, however, be reduced under Alternative A because no treatment would occur. Reductions would be greatest under Alternatives C and D, where 100% of the encroaching juniper would be reduced. Miles of riparian areas in PFC would remain the same in all alternatives.

Special status plants under the ESA and Idaho BLM sensitive species guidance would be protected on federal lands through site-specific mitigation, including exclusion or avoidance of all surface-disturbing and disruptive activities. However, these species on private and state lands might not be protected, resulting in potential impacts on these species.

Effects on vegetation from livestock grazing improvements or other possible surface-disturbing and disruptive activities, along with those of minerals and energy development and recreation use (OHVs), would result in localized short-term and long-term effects on vegetation resources. Effects from vegetation treatments in the form of prescribed fire and nonfire treatments would include a short-term increase in early successional species and a short-term decrease in vegetation production. However, long-term effects would improve overall vegetative diversity through an increase in grass species. Treatments would shift vegetation types to a more desirable composition of vegetation classes and LHC.

The total surface area affected by selenium due to phosphate mining (approximately 2,169 acres) would remain the same across all alternatives.

4.2.5.9 Tribal Treaty Rights and Interests

By exercising tribal treaty rights and interests the size, timing, and type of vegetation management and treatment could be affected. However, it is unlikely that such interests would affect the long-term objective to improve LHC in each of the vegetative types because the BLM consults with tribes on projects affecting tribal treaty rights on public lands. The BLM would continue to solicit input from tribes on future projects, which would at least reduce, if not eliminate, the effect on vegetation resources. The presence of sensitive plant species with tribal significance could, for example, affect the ability to treat noxious weeds if such species were to occur adjacent to, or within, proposed treatment areas.

4.2.6 FISH AND WILDLIFE

4.2.6.1 Summary

As similarly discussed in the Section 4.2.5 (Vegetation) fish and wildlife resources may be affected by management decisions and activities across all alternatives. Given this, the impacts, depending on size, type, and intensity of activity, would generate direct and indirect impacts over the short-and long-terms.

As this is a planning level document providing management direction, site specific impacts are not analyzed, rather the magnitude of impacts caused by a particular program is analyzed. For example, in the Lands and Realty program the amount of acres of deer winter range in the disposal zone can be compared between alternatives. The document does not indicate which

parcels may leave federal ownership, but does inform the reader of the number acres expected to leave federal ownership by alternative.

Section 4.2.5 (Vegetation) describes in detail differences in the vegetative communities based on vegetation treatments across all alternatives in terms of LHC class. As fish and wildlife presence and use are tied directly to one or more vegetation types, many of these differences are also applicable to the Fish and Wildlife section.

Generally, impacts on fish and wildlife would occur primarily from surface-disturbing activities associated with vegetation treatments and range improvements. Vegetation treatments and range improvement projects, including wildland fire management, could result in both short-term and long-term impacts. Minerals and energy exploration and development requiring the construction of roads, mines, pipelines, wells, and well pads and the development of recreation facilities, such as campgrounds and trails, and OHV travel could have impacts on vegetation, and in turn, fish and wildlife.

4.2.6.2 Methods of Analysis

Indicators. These were developed to assist in evaluating impacts of resources and resource use management direction on fish and wildlife. These indicators focus on acres of types of habitat (such as deer winter range), changes in the LHC/BpS class of a vegetation type or changes in the types of habitat due either to treatments, natural succession or catastrophic events (wildland fires/floods). The indicators developed for fish and wildlife are as follows:

- Change in acres of deer winter range.
- Fluid Minerals - number of NSO stipulation acres applied to protect wildlife habitat.
- Change in acres for identified (desired) BpS class for Low-Elevation Shrub, Mid-Elevation Shrub, Mountain Shrub, Dry Conifer, and Aspen/Aspen Conifer Mix/types.
- Seedings - change in acres with sagebrush canopy.
- Riparian - change in stream miles at PFC.

Table 4.2.6-1 summarizes the change in acres (using current conditions as a benchmark) for indicators by alternative, both qualitatively and quantitatively.

Table 4.2.6-1. Comparison of Fish and Wildlife Indicators by Alternative

Indicator (acres)	**Alternative**			
	A	**B**	**C**	**D**
Deer winter range (contained in disposal zone)	4,200	15,700	15,700	46,000
Fluid Minerals - NSO stipulation applied to protect wildlife habitat	4,800	23,500	68,300	8,400
Fluid Mineral - Acres closed or administratively unavailable to leasing, providing protection for wildlife	0.0	258,100	0.0	0.0

Table 4.2.6-1. Comparison of Fish and Wildlife Indicators by Alternative

Indicator (acres)	**Alternative**							
	A		**B**		**C**		**D**	
Seasonal wildlife occupancy restrictions[4]	227,400		83,700		196,300		226,300	
Change in Identified (Desired) BpS Class by Vegetation Type	Short Term [1]	Long Term [2]	Short Term [1]	Long Term [2]	Short Term [1]	Long Term [2]	Short Term [1]	Long Term [2]
Low-Elevation Shrub (BpS Class C)[3]	9,400	37,500	7,200	27,800	7,200	36,400	9,400	37,500
Mid-Elevation Shrub (BpS Class B)[3]	53,000	29,600	78,400	41,500	69,600	37,400	99,800	51,600
Mountain Shrub (BpS Class B)[3]	187,000	187,000	186,800	187,000	186,800	187,000	187,000	187,000
Aspen/Aspen Conifer Mix/Dry Conifer (BpS Class B)[3]	800	1,900	800	6,900	800	29,300	800	300
Seedings – sagebrush with canopy change	0.0		34,600		1,300		42,100	
Riparian – stream miles in PFC	36 miles		Increase		Increase		Increase	

[1] ST - Short-term acre results from treatments occurring in the first 10 years.
[2] LT - Long term acre results from treatments and succession 11-30 years (20 years total).
[3]See **Appendix J** for BpS Class description.
[4] Overall, these restrictions cover approximately 439,000 acres, or 72% of public lands administered by the PFO. Fluid mineral leasing closures, administratively unavailable, or NSO lease stipulations would override timing restrictions. Figures in **Table 4.2.6-1** show by alternative the acreages with timing restrictions that lie outside the more restrictive NSO, administratively unavailable, and closure areas.

Management direction from different resource and resource uses are assessed for their impacts on vegetation types (and representative wildlife species further described in Section 4.2.6.4). In the following sections, impacts were quantified where possible, primarily using GIS and best professional judgment. Terms referring to impact duration were used in the impact analysis and focus primarily on short term and long term impacts as defined below:

- Short Term: These types of impacts, most often a result of some type of vegetation treatment, would occur in the first 10 years.
- Long Term: Impacts that occur as a result of actions taken in the short term and/or natural succession that would occur in the window of 11-30 years.

Methods and Assumptions. Impacts on fish and wildlife are largely driven by habitat conditions and are therefore closely tied to how vegetation types are affected across the planning area. Many of the assumptions identified in Section 4.2.5.2 (Vegetation) are applicable to fish and wildlife and are listed below:

- Vegetation treatments would be implemented in the first 10 years and outcomes over the next 20 years would be based on treatment results and succession. The first 10 years would be short-term impacts (up to 10 years) and long-term impacts would occur between 11 and30 years.
- Riparian communities are functioning properly or are in the process of achieving PFC.
- Public lands would be subject to prescribed fire treatments and to nonfire treatment methods, including mechanical and chemical, during the first 10 years following implementation of the Plan. Treatments conducted in the first 10 years would be conducted primarily to help reduce wildland fire potential, and secondarily to help move vegetation types to FRCC 1. Prescribed fire would occur mainly in the early spring or late fall.
- Vegetation types in FRCC 1 would provide the best habitat for their representative wildlife species. Those vegetation types in FRCC 3 would provide conditions less than desirable for their representative species.
- Invasive species/noxious weeds would continue to be introduced and spread into native plant communities as a result of ongoing natural processes and human-induced activities (e.g., livestock and wildlife foraging, recreational activities). Disturbances to native plant communities would also expand opportunities for the spread of nonnative, invasive plant species.
- BLM would continue to treat invasive species/noxious weeds on public lands.
- Livestock type and stocking would remain stable.
- Consolidation of public lands would lead to efficiency in vegetation management, the degree to which depends on the number of acres consolidated.
- Recreation demand and use would continue to increase.
- Vegetation condition would generally improve as wildland fire returns to its natural role.
- Fish and wildlife species would prefer the LHC class “A.”

In all alternatives, Fish and Wildlife direction would not be affected by Air Quality, Soils, Visual Resources, and Special Designations; so these resources and resource uses are not further addressed under this section.

4.2.6.3 Impacts Common to All Alternatives

Vegetation modeling describing the current LHC and the desired future conditions (DFCs) over 10- and 30-year intervals is presented in detail in Section 4.2.7.3 (Vegetation). This modeling incorporated both natural succession and proposed vegetation treatments to the vegetation types found across the planning area to assist analyzing the alternatives proposed in this RMP. **Table 4.2.6-2** identifies wildlife species representative of the variety of species found within these modeled vegetation types. These species are reflective of a much larger group of species that typically inhabit these vegetation types. It should be expected that impacts on a particular vegetation type would also affect the majority of fish and wildlife species found within that vegetation type. For example, if impacts on the Mid-Elevation Shrub type are identified from natural succession to a particular vegetation treatment, it would be expected that the wildlife species typically inhabiting the Mid-Elevation Shrub type would also be impacted.

To further clarify, for this Section (4.2.6.3) and through Section 4.2.6.8, impacts on fish and wildlife resources within the planning area would be described in terms of impacts on a particular vegetation type and its inferred representative wildlife species found in **Table 4.2.6-2**. For example, if lands and realty actions in Alternative A were to impact the Low-Elevation Shrub and Juniper types, then one should infer that those impacts would also impact the fish and wildlife species in those vegetation types, as highlighted by the representative species in **Table 4.2.6-2**.

Table 4.2.6-2. Key Representative Wildlife Species by Vegetation Type

Vegetation Type (acres)	Key Representative Wildlife Species
Low-Elevation Shrub (144,800)	pronghorn, cottontail rabbit, Colombian sharp-tailed grouse, gray partridge, mourning dove, montaine vole, mule deer, ring-neck pheasant, Rocky Mountain elk, greater sage-grouse, short-eared owl, Western meadowlark
Mid-Elevation Shrub (142,000) Mountain Shrub (187,100)	pronghorn, blue grouse, cottontail rabbit, Colombian sharp-tailed grouse, chukar, gray partridge, mule deer, Rocky Mountain elk, greater sage-grouse
Juniper (14,400)	cottontail rabbit, mountain lion, mourning dove, mule deer, Rocky Mountain elk
Aspen/Aspen Conifer Mix/Dry Conifer (90,300) Wet/Cold Conifer (700)	black bear, blue grouse, moose, mountain lion, mule deer, Rocky Mountain elk, ruffed grouse
Riparian (6,600)	black bear, blue grouse, cottontail rabbit, Colombian sharp-tailed grouse, chukar, ducks, geese, gray partridge, moose, mourning dove, mule deer, ring-neck pheasant, pronghorn antelope, Rocky Mountain elk, greater sage-grouse, snipe

Impacts from Cultural Resources Direction: Across all alternatives, impacts from digs or excavations would disturb small amounts of habitat for fish and wildlife. These activities would be subject to project level analyses to identify and assess specific impacts. If management to protect culture resource sites is implemented, it would generally enhance habitat for fish and wildlife.

Impacts from Paleontological Resources Direction: Impacts would be similar to those identified for cultural resources.

Impacts from Vegetation Direction: The Juniper, Wet/Cold Conifer, and riparian vegetation types are not discussed in individual alternatives. No treatments are proposed in the Juniper or the Riparian types, and treatments in the Wet/Cold Conifer did not change the BpS class.

To evaluate impacts on wildlife from fuels/vegetation treatments, BpS were used along with LHC. Wildlife species are generally associated with a particular habitat structure within a vegetation type.

Greater sage-grouse and Low-Elevation Shrub illustrate why BpS was used. In Alternative C, 71% of the acres are in LHC-A, but only 5% are in BpS class C. Class C has a shrub canopy

cover of 16 – 30%, which includes the range of shrub canopy cover selected by nesting greater sage-grouse.

If LHC-A had been used to evaluate greater sage-grouse nesting habitat, it would have indicated that approximately 104,000 acres would be provided in both the short and long terms. When BpS classes are used to evaluate greater sage-grouse nesting habitat, class C with 16-30% canopy cover provides nesting habitat. Thus, approximately 7,200 acres would be identified as nesting habitat in the short term, while approximately 36,400 acres would provide nesting cover after 30 years. Using only LHC would have overstated greater sage-grouse nesting habitat by 93% in the short term and 65% in the long term.

BpS classes selected to evaluate wildlife impacts for each vegetation type are identified in **Table 4.2.6-3**. The same BpS classes were used for each vegetation type by alternative.

In the shrub types (Low-Elevation Shrub, Mid-Elevation Shrub, Mountain Shrub) greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15 – 25% in nesting habitat. In Low-Elevation Shrub, class C has shrub canopy cover from 16 – 30%, Mid-Elevation Shrub class B, has a shrub canopy cover of 6 – 25%, and Mountain Shrub class B is the only class that has shrubs in the upper layer of vegetation.

Table 4.2.6-3. Description of Selected BpS Class for Wildlife Impact Assessment by Vegetation Type

Vegetation Type	Selected BpS Class	Key Component Description for Selected BpS Classes
Low-Elevation Shrub	C	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15 – 25% in nesting habitat. In Low-Elevation Shrub, class C has shrub canopy cover from 16-30%.
Mid-Elevation Shrub	B	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15 – 25% in nesting habitat. In Mid-Elevation shrub, class B has shrub canopy cover from 6-25%.
Mountain Shrub	B	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15 – 25% in nesting habitat. In Mountain Shrub, class B is the only class that has shrubs in the upper layer of vegetation.
Juniper	E	Class E represents areas where juniper is not encroaching in to the shrub land ecological sites.
Dry Conifer Aspen/Aspen Conifer Mix	B	Aspen saplings over 12 feet tall dominate this class. These stands have recent aspen reproduction and provide both mule deer fawning habitat and ruffed grouse nesting habitat.
Wet/Cold Conifer	D	Class D provides the structure of a mature forest.

The BpS class used to evaluate the Aspen/Aspen Conifer Mix/Dry Conifer types was class B. Aspen saplings over 12 feet tall dominate this class. This class was chosen because it represents stands with recent aspen reproduction and provides both mule deer fawning habitat and ruffed grouse nesting habitat.

The BpS class used to evaluate the Juniper type was class E. This class represents areas where juniper is not encroaching in to the Mid-Elevation Shrub ecological sites.

The Wet/Cold Conifer type was evaluated using the BpS class D. This class provides the structure of a mature forest.

Vegetation treatments (prescribed fire; livestock grazing strategies; and biological, chemical, and mechanical treatments) can have a wide range of impacts on vegetation types and their associated fish and wildlife resources. **Table 4.2.6-4** presents a summary of the vegetation treatment results by alternative over the short term (10 years) and long term (30 years). The table identifies a change (increase or decrease) in the desired BpS class acreage of a particular vegetation type and assumes an increase in BpS class acreage would similarly impact its representative fish and wildlife species.

To the extent possible, the following paragraphs summarize types of vegetation treatments (prescribed fire; livestock grazing strategies; and chemical, mechanical and biological treatments) and their associated impacts.

Table 4.2.6-4. Short Term (10 Years) and Long Term (30 Years) Change in Acreage Resulting from Vegetation Treatments on Identified (Desired) BpS Classes[1] of Representative Fish and Wildlife Species by Alternative

Vegetation Type [2]	BpS Class[3]	Alternative							
		A		B		C		D	
		10 Years	30 Years	10 Years	30 Years	10 Years	30 Years	10 Years	30 Years
Low-Elevation Shrub	C	9,400	37,500	- 7,200	- 27,800	- 7200	- 36,400	NC 9400	NC 37,500
Mid-Elevation Shrub	B	53,000	29,600	+ 78,400	+ 41,500	+ 69,600	+ 37,400	+ 99,800	+ 51,600
Mountain Shrub	B	187,000	187,000	NC 186,800	NC 187,000	NC 186,800	NC 187,000	NC 186,900	NC 187,000
Juniper	E	14,400	14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400
Aspen/ Aspen Conifer Mix/ Dry Conifer	B	800	1900	NC 800	+ 6,900	NC 800	+ 29,300	NC 800	- 300
Wet/Cold Conifer	D	700	700	NC 700	NC 700	NC 700	NC 700	NC 700	NC 700
Riparian	NA	NA	NA	+	+	+	+	+	+

[1] A "+" indicates and increase in the BpS class acreage of the specific vegetation type. A "-" indicates a decease in the BpS class acreage. NC indicates no change in acreage compared to current conditions.
[2] Representative fish and wildlife species for these vegetation types are found in **Table 4.2.3-2.**
[3] See **Appendix J** for BpS Class description.

Prescribed Fire

Prescribed fire in the Aspen/Aspen Conifer Mix/Dry Conifer types would impact wildlife over the long term by converting older stands of aspen to younger stands, which extends the life of this vegetation type and prevents conifer domination of the site. Prescribed fire would limit juniper intrusion into the sagebrush and shrub communities. This would increase habitat for sagebrush-dependent species but reduce habitat for juniper-dependent species.

Livestock Grazing Strategies

Impacts of varying degree can occur depending on the type and duration of livestock grazing on certain vegetation types. It has historically lead to impacts in the Low- and Mid- Elevation Shrub types affecting winter range for deer and grouse as well as nesting cover for both greater sage-grouse and Columbian sharp-tailed grouse. These impacts may include reduced stubble heights of herbaceous vegetation for wintering or nesting wildlife, trampling of nests or the spread of noxious or undesirable nonnative weed species.

No impacts from livestock grazing would occur in the Juniper, Dry Conifer, and Aspen/Aspen Conifer Mix types or to their associated fish and wildlife resources. By tailoring livestock grazing time and frequency in these vegetation types, losses of young aspen seedlings and small trees should be limited. This would provide hiding cover for big game and increased nesting cover for species that nest on or near the ground.

By reducing the intensity of understory livestock grazing in the Low- and Mid-Elevation Shrub and Mountain Shrub types, impacts from the loss of understory cover and forage should be lessened. Impacts within the riparian vegetation type should be lessened as livestock grazing is managed for PFC. Vegetation should be taller and denser providing additional cover for small wildlife species (birds and frogs) and forage for big game.

Chemical Treatments

The types of chemicals used when treating vegetation (noxious weeds/undesirable plants) are generally species specific, so non-target species typically are not destroyed. Although not the most desirable cover, noxious weeds or undesirable, nonnative species do provide some habitat (cover and forage) for select species such as chukars which thrive on cheat grass seeds and green shoots in late winter and early spring. Given this, there may be short-term impacts (lack of cover) in small areas as the targeted weed species are removed and replaced with more desirable vegetation.

Mechanical Treatments

Mechanical treatments would focus primarily on the Juniper type where juniper would be cut to manage fuels in the WUI. This removal may impact big game due to the loss of cover and shelter habitat and, to a lesser extent, forage habitat.

Impacts from Fish and Wildlife Direction: Big game habitat would be managed to generally support IDFG deer and elk management plans. This would include aspen treatments (Section 4.2.5, Vegetation), travel management changes (Section 4.3.5, Recreation), improvement of riparian areas, and the protection of elk calving grounds and big game winter ranges.

Three areas would be managed as priority areas for big game: the Soda Springs Hills Management Area (approximately 18,700 acres), the Pleasantview Hill/Samaria Mountains (approximately 101,100 acres), and Blackrock Canyon (approximately 10,700 acres).

The Soda Springs Hills Management Area would be managed to enhance winter range by using seasonal closures to vehicles, not allowing snowmobiles, designating OHV routes, and designating an NSO for Fluid Minerals. The Pleasantview/Samaria area would be managed as a summer area for big game, and aspen treatments would be prominent in its management. Blackrock Canyon would be managed as deer winter range with travel restrictions.

Impacts from Special Status Species Direction: Special Status Species management does not affect fish and wildlife resources or habitats. An exception to this may occur when, in the future, a species is listed and its management or the measures taken to protect that species affect other non-listed species or their habitat. For example, managing the Wet/Cold Conifer type to promote mature stands with little understory to impact a listed owl species could impact, to varying degrees, those species (song birds, small mammals) that rely heavily on a dense understory as their cover and forage habitat.

Impacts from Water Resources Direction: Maintaining PFC or striving to reach PFC within the Riparian type would impact fish and wildlife species associated with this vegetation type. Once PFC is achieved, riparian vegetation filters sediment out of water, improving water quality, which would improve habitat for fish. Properly functioning streams are usually narrower and deeper, resulting in cooler water and better habitat for fish.

Impacts from Wildland Fire Management Direction: Wildland fire is a natural part of the ecosystem and has impacts on fish and wildlife species. Short-term effects on fish and wildlife species could include temporary loss of forage and cover or direct loss of individuals less mobile and not capable of moving out of wildland fire's path. Long-term effects of wildland fire on vegetation types affect their associated fish and wildlife species accordingly. Wildland fire, at the appropriate frequency, reduces fuel loads by removing dead material and providing regeneration of wildland fire-tolerant species within native plant communities.

However, long-term wildland fire suppression, without a wildland fire management plan to control fuel loads, can result in catastrophic wildland fires. Catastrophic wildland fires tend to burn hotter and often cover a larger area than historical norms. Therefore, vegetation types take longer to regenerate, and the carrying capacity for a given wildlife species, within a given habitat, may be greatly reduced for a longer period of time.

Suppression of naturally occurring wildland fires has resulted in the loss of wildlife habitat. In sagebrush steppe habitat, the suppression of wildland fire has led to the loss of greater sage-grouse habitat due to juniper encroachment. In the Aspen/Aspen Conifer Mix/Dry Conifer types, wildland fire suppression has resulted in decadent aspen stands and monotypic conifer forests. Aspen forests are very important to many wildlife species, such as big game and birds, and support more biodiversity than monotypic conifer stands. Other impacts from wildland fire suppression activities include cutting or bulldozing fire lines, treating wildland fire from the air with chemicals or water, and backburning. Cutting, bulldozing and backburning destroy habitat, displaces wildlife, increase competition for cover and forage on adjacent habitat, and can cause the direct loss of those individuals that are less mobile.

Wildland fires in the Low- and Mid-Elevation Shrub types have allowed for the invasion of cheat grass that typically provides little to no habitat value for these vegetation types and tend to displace the native vegetation species that provide better habitat.

Increased wildland fire within riparian habitats tends to increase the siltation and sedimentation of the water sources in the given area and can have impacts on the aquatic organisms living in that water source. Depending on fire severity, loss of large woody debris recruitment potential within the Riparian type could impact areas where wood is a critical component in stream morphology. The loss of large woody debris would impact fish by reducing hiding cover in the stream and reducing nutrients in the system.

Section 4.2.10 (Wildland Fire Management) details the fire and nonfire vegetation treatments proposed for the alternatives. These treatments involve a variety of vegetation treatments (mechanical, chemical, biological, timber harvest) and wildland fire management including prescribed fire and WFU (allowing wildland fire to burn if it falls within certain criteria). Section 4.2.10 also presents and discusses FRCC. For this discussion, vegetation types in FRCC 1 would provide the best habitat for its representative species. Those types in FRCC 3 would provide conditions less than desirable for its representative species.

Table 4.2.6-5 shows the current FRCC by vegetation type and the predicted FRCC as a result of treatment and/or succession in 30 years. As the **Table 4.2.6-5** indicates, in no vegetation type does the FRCC decrease over time. Four of the vegetation types (Low-Elevation Shrub,

Table 4.2.6-5. Wildland Fire Treatment Acreage and Predicted Change in FRCC Class by Alternative

	Alternative							
	A		**B**		**C**		**D**	
Proposed Treatment Acres, All Vegetation Types	3,400		124,250		54,920		162,170	
Vegetation Type [1]	Current FRCC	30 Years	Current FRCC	30 Years	Current FRCC	30 Years	Current FRCC	30 Years
Low-Elevation Shrub	2	1	2	1	2	1	2	1
Mid-Elevation Shrub	2	2	2	2	2	2	2	2
Mountain Shrub	2	2	2	1	2	1	2	1
Natural Juniper	2	2	2	2	2	2	2	2
Aspen/Aspen Conifer Mix/ Dry Conifer	3	3	3	2	3	2	3	2
Wet/Cold Conifer	2	2	2	2	2	2	2	2
Other/Vegetated Lava	1	1	1	1	1	1	1	1
Riparian	NA	NA	NA	NA	NA	NA	NA	NA

[1] Representative fish and wildlife species for these vegetation types are found in **Table 4.2.3-2**.

Mountain Shrub and Aspen/Aspen Conifer Mix/Dry Conifer) show improvements in some or all alternatives while the remaining vegetation types (Mid-Elevation Shrub, Juniper, Wet/Cold Conifer and Other/Vegetated Lava) showed no change in FRCC.

Implementation priorities for multiple wildland fire ignitions emphasize minimizing risks to the sagebrush steppe vegetation types. As such, impacts on fish and wildlife resources and their habitats would have greater consideration in prioritizing wildland fire suppression.

Impacts from Forestry Direction: Forestry management activities (timber harvest and associated temporary and permanent road construction activities) are proposed in Alternatives A, B and D on a very limited scale (approximately 120-to-180 acres annually). Timber harvests would occur in the Aspen/Aspen Conifer Mix/Dry Conifer and Wet Cold/Conifer types. Impacts from timber harvests and associated activities (noise, dust, and traffic) could result in direct habitat loss for particular species, causing displacement and competition for habitat and forage in other locations. Sedimentation and other water resource issues (temperature changes) from timber harvests (e.g., opening forest canopy), associated road construction and log hauling could affect aquatic resources to varying degrees.

Forest management activities that change BpS class would impact species that prefer one BpS class to another. In aspen stands woodpeckers generally prefer older, larger trees for cavity construction while ruffed grouse prefer young aspen for nesting habitat. However, it is anticipated that species would be able to relocate to adjacent stands and find similar/suitable conditions. Unauthorized public use of temporary and permanent logging roads could have direct impacts, such as the harassment of big game, and indirect impacts, such as the introduction of weeds into habitat.

Impacts from Lands and Realty Direction: All alternatives envision adjusting land tenure. Alternative A would have 3 disposal categories: 1) exchange only, 2) sale or exchange, and 3) state exchange only. For alternatives B, C, and D, impacts were evaluated on only the “disposal zone”. The impacts of land tenure adjustments were evaluated for mule deer winter range, and greater sage-grouse and Colombian sharp-tailed grouse habitat.

The method used to evaluate Colombian sharp-tailed grouse habitat was based on distance from identified leks. This methodology would provide a maximum acreage figure because it uses the entire acreage around a lek when all acreage may not be nesting or winter habitat. Undoubtedly, not all leks have been identified; and this fact would reduce the acreage totals generated using this method. To delineate nesting habitat, a 1.2 mile radius around leks was used, for winter range the distance was increased to 3.6 mile radius.

Mule deer winter range acres were evaluated by comparing mapped winter range areas with land ownership in the disposal zone. Similarly known greater sage-grouse habitat was compared to land ownership in the disposal zone.

Impacts from Livestock Grazing Direction: A wide range of impacts on vegetation types and their representative fish and wildlife species could occur from livestock grazing activities. Some of these impacts were previously discussed in this section under Impacts from vegetation. In addition, the following activities may occur:

- Direct competition between livestock and fish and wildlife for habitat. As an example, grazing in riparian areas by livestock causes the use of herbaceous and shrubby vegetation component resulting in competition with fish and wildlife species. The intensity of impacts often depends on the timing and duration of livestock grazing.
- Range improvements, which include fences and livestock watering facilities. Fences can limit and concentrate wildlife movement. Watering improvements (spring development, tanks, small reservoirs, or wells) may help riparian areas by limiting the presence of livestock, but consequently may affect the downstream riparian corridor by reducing the volume of water. Additionally, posts can serve as perches for predators and brown-headed cowbirds.
- Livestock grazing during critical times for vegetation, such as spring green up (fawning/calving), nesting season for ground nesters, and winter range use could affect wildlife to varying degrees, by removing cover necessary to protect nesting birds, providing essential insect food for chicks, and revealing hens and nests to predators.

Impacts from Minerals and Energy Direction: As **Table 4.2.6-6** indicates, much of the planning area is subject to minerals and energy exploration and management which include Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals resources. Mineral and energy development would be managed with a combination of open and closed areas, NSOs, and seasonal restrictions to protect wildlife species and habitat. Section 4.3.4 (Minerals and Energy) describes these restrictions in detail.

Table 4.2.6-6. Approximate Acres Open for Mineral Resource Development by Mineral Resource Type by Alternative

Mineral Resource Type	Alternative			
	A	B	C	D
Fluid Minerals	602,600	344,500	602,600	602,600
Solid Leasable Minerals	557,000	582,400	546,400	597,400
Mineral Materials	547,500	582,400	505,800	597,400
Locatable Minerals	548,200	533,300	533,300	548,200

There are currently four Federal Oil and Gas leases in the planning area. In the RFDS of Fluid Minerals, typical activities associated with the issuance of oil and gas leases include preliminary exploration, exploratory drilling, field development, production and abandonment. Acreage disturbances for the first four phases would approximately 185 acres per well. NSOs for Fluid Minerals differ by alternative, with larger acreages decreasing the disturbance of wildlife habitat.

As such, all the vegetation types and representative fish and wildlife species may be subjected to impacts from minerals and energy exploration or RFDS of Fluid Minerals (oil and gas) development. Similar to the impacts discussed in the Lands and Realty Section, impacts associated with minerals and energy exploration and RFDS of Fluid Minerals (oil and gas) development could be wide ranging. Generally, they could include:

- Direct habitat loss, including reduction in usable habitat, disruption of fish and wildlife movements from roads, culverts, utility corridors and other ancillary facilities, habitat

fragmentation, and loss and displacement of individuals. Due to noise and human activity, wildlife generally avoid developed areas, which results in fragmentation and wildlife displacement.

- Impacts on the environment from environmental stressors resulting from mining (e.g., sediment, metal contaminants, selenium in particular) could affect habitats used by fish and wildlife resources in many ways. Uptake of heavy metals by vegetation (specifically in new seedings designed to provide cover for disturbed areas) can in turn be passed up the food chain via direct consumption or uptake by predators via ingestion of prey.
- Impacts on the aquatic community, from contaminants resulting from minerals and energy exploration and extraction, include both physical and chemical impacts. Physical impacts include increased sedimentation from road construction and mining activities and actual relocation or diversion of streams. Chemical contaminants, such as selenium from phosphate mining, may be dissolved in the water or found in the sediments, affecting a wide range of aquatic species, flora and fauna alike.

Impacts from Recreation Direction: Recreation activities, such as hiking, biking, camping, OHV and boat use, fishing, hunting and sightseeing can have impacts on vegetation types and their representative fish and wildlife species. Types of impacts may include displacement of species from their typical habitats due to human presence or recreation related facilities, mortality (hunting and fishing) or by habitat degradation.

Increased use of OHVs, (in particular: four-wheel drive vehicles, all-terrain vehicles (ATVs), motorcycles, or snow machines) throughout the planning area on open, restricted and undesignated lands could impact wildlife due to human presence or cause undue stress to wildlife during critical times such as wintering, fawning/calving or nesting. Impacts could also result from transportation routes related to recreation activities (new trails or increased use of existing trails) that may increase public accessibility to vegetation types and their representative fish and wildlife species. Increased and better access could also impact fish and wildlife species to varying degrees by allowing unlawful harvest of game and non-game species.

Impacts from Special Designations Direction: Special designations, such as Wilderness and WSAs, Wild and Scenic Rivers, and ACECs or RNAs, would impact vegetation types and, in turn, fish and wildlife resources. These areas are typically designated to protect, restore, enhance, or create new habitat (both aquatic and terrestrial). Additionally, these areas minimize or limit disturbance, allowing habitat conditions and fish and wildlife resources to exist in near-natural conditions.

4.2.6.4 Alternative A

Impacts from Special Status Species Direction: Current management of special status species habitats would have negligible impacts on fish and wildlife species. Actions taken to maintain or improve special status species habitats would have similar effects to fish and wildlife habitat in close proximity to special status species habitat.

Impacts from Vegetation Direction: Over the long term, Alternative A would maintain or increase forage production for both livestock and wildlife. Managing rangeland for forage production (drilling, spraying, fertilizing, prescribed fire, and chaining) could impact wildlife

species as these activities tend to focus on the production of monotypic stands of vegetation rather than a diversity of species.

Alternative A would allow limited treatments in crested wheatgrass seedings, but nowhere else, in the Shrub Steppe vegetation types. Compared to the other alternatives, Alternative A would have the lowest potential for providing long term restoration of the sagebrush steppe and, in turn, their representative wildlife species.

Overall, only approximately 3,400 acres of vegetation treatment is proposed in Alternative A and that would occur in the Aspen/Aspen Conifer Mix/Dry Conifer types. This is the least amount of acres proposed for treatment in any of the alternatives. In all the forest vegetation types, wildland fire suppression and limited vegetation treatments would increase the risk of even age stand(s) that would become susceptible to catastrophic wildland fire, insects or disease. These events would cause a long-term reduction in mature forest habitat.

Table 4.2.6-3 identifies the vegetation types and the BpS class used to evaluate impacts on special status fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover (15 – 25%) required by nesting greater sage-grouse. The acreage would increase from 0 acres at the start of the planning period, to approximately 9,400 acres after 10 years, and approximately 37,500 acres after 30 years resulting in improved nesting/brooding rearing habitat. At year 30, this is 98% of the entire Low-Elevation Shrub type resulting in improved nesting/brooding and rearing habitat.

The approximately 42,100 acres of crested wheatgrass seedings are contained within this vegetation type. The seedings were assigned an uncharacteristic class because it is a class that does not occur within the natural regime at the beginning of the planning period and would remain in that class throughout the planning period.

In the Mid-Elevation Shrub vegetation type the BpS evaluation class is class B because this vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. The planning period begins with approximately 40,500 acres in class B and increases to approximately 53,000 acres after 10 years. After 30 years, only approximately 29,600 acres would remain in Class B. At year 30, this would be 21% of the entire Mid-Elevation Shrub type resulting in improved nesting/brooding and rearing habitat.

In the Mountain Shrub type, BpS class B is used to evaluate wildlife habitat because it provides the required shrub cover (15-25% canopy is desirable) for wildlife use. Class B would contain approximately 187,000 acres throughout the planning period. At year 30, this would be 100% of the entire vegetation type; thus, nesting/brooding and rearing habitat would be maintained.

For the Aspen/Aspen Conifer Mix/Dry Conifer types the desired BpS class is B. This class provides young aspen (sapling stage) required by nesting ruffed grouse and is used by mule deer as fawning habitat. At the beginning of the planning period, class B would contain approximately 500 acres, and would increase to approximately 800 acres by year 10 and approximately 1,900 acres by year 30. At year 30, this would be 5% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved nesting/brooding and rearing habitat.

For all vegetation types except the Aspen/Aspen Conifer Mix/Dry Conifer types, the change in BpS class would be the result of succession. Aspen/Aspen Conifer Mix/Dry Conifer types would be the only vegetation types treated in Alternative A.

Impacts from Wildland Fire Management Direction: In this alternative, current wildland fires would continue to be suppressed in all vegetation types. Wildland fire would not be used as a management tool. Impacts from suppression, described in Section 4.2.3.3 under Wildland Fire Management, would be maximized in this alternative. ES&R following wildland fire would take place in order to stabilize soils, speed the re-establishment of sagebrush cover types and enhance species diversity to minimize invasive species/noxious weeds.

Of the four alternatives, the least acreage treated would be in Alternative A. Only approximately 3,400 acres in the Aspen/Aspen Conifer Mix/Dry Conifer types would be treated in this alternative. Potential impacts in Alternative A would include fuel conditions (e.g., increased fuel loads) for those vegetation types and their representative fish and wildlife species that could lead to larger and/or hotter, more intense wildland fires. An example of the risk to fish and wildlife species associated with these vegetation types due to such wildland fires would include the longer recovery of types containing a component of sagebrush because the seed source would be reduced over a larger acreage.

Impacts from Lands and Realty Direction: Alternative A provides for retaining approximately 581,600 acres in federal ownership. Approximately 32,200 acres (5% of the planning area) would be made available for disposal by various means. Approximately 562,900 acres would be open to LUAs, 20,200 acres would be avoidance areas, and 32,000 acres would be closed to LUA development. If possible, public access would be acquired to allow use of approximately 37,300 acres.

If approximately 32,300 acres of land leaves federal ownership, that many acres of wildlife habitat could be lost. Development by the new owners could lead to major alterations in habitat (gravel pits, cropland) or there could be little change in habitat if management is similar (grazing, dispersed recreation). Approximately 4,200 (2% of deer winter range in the planning area) acres of deer winter range would leave federal ownership.

Although 569,600 acres are currently open to LUA development, in the last 3 years the number of LUAs issued has varied from 7-to-10 per year and the total acres involved ranged from 31-to-213 per year. If a large energy-related LUA was issued in the planning area, the acres affected could be much larger. The types of impacts expected from LUAs would be fragmentation of habitats caused by new roads; the increased chance of invasive plant introduction, which would affect habitat quality; and the disturbance to riparian habitat caused by stream crossings.

Increased public access could result in increased wildlife harassment during sensitive periods of the year such as big game winter range, or during nesting seasons for birds.

Impacts from Livestock Grazing Direction: Approximately 556,300 acres (91% of the planning area) are available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would not be available for livestock grazing. The portion of deer winter range in the area that is now grazed should improve with reduced livestock grazing. If livestock

grazing adjustments would be required in other areas, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Impacts from Minerals and Energy Direction:

Fluid Minerals

Alternative A allows approximately 602,600 acres in the planning area to be leased for Fluid Minerals development, with approximately 11,200 acres closed (Petticoat Peak and Worm Creek WSAs). Approximately 314,000 acres (51% of the planning area) would be leased with an NSO stipulation, and seasonal restrictions would be applied to approximately 227,400 acres. NSO stipulation would protect habitat in ACECs and RNAs, big game winter range, and riparian and perennial streams (**Table 4.3.4-2**). This would decrease the disturbance from exploration and development on deer and elk on winter ranges, during calving and fawning seasons, and on greater sage-grouse during nesting season. With seasonal restrictions, impacts on habitat from exploration could still happen during a less important period of the year for the species.

Under Alternative A, the Soda Springs Hills Management Area, located in an area with High potential for oil and gas resources, would not be leased with an NSO stipulation. Protecting wintering big game from exploration would rely on site-specific mitigation measures in a site-specific oil and gas exploration plan approval.

The RFDS for oil and gas development is the same for all alternatives. The BLM expects to issue approximately 50 leases for oil and gas, to allow the implementation of five exploration projects, and to oversee development of a five-well field. The most likely place for exploration and development is on the Bear Lake Plateau (High oil and gas potential) (**Figure 3-15**) Shrub Steppe habitat, which provides both big game winter ranges and greater sage-grouse habitat.

Under the exploration phase, four miles of road per well and a well pad would be constructed. Each exploration project would disturb approximately 25 acres, 21 acres per road and 4 acres for each well pad. Development of the field would disturb approximately 60 acres. Total disturbance to Shrub Steppe habitat would be approximately 185 acres.

Long-term disturbance from field development would be approximately 85 acres. The remaining 100 acres would cause short-term effects (e.g., temporary loss of habitat) as exploration disturbance would be reclaimed. It is unlikely that all of the 100 acres would be disturbed at the same time because exploration could take place at different times.

Twenty miles of new roads would lead to increased fragmentation of Shrub Steppe habitat in both the short term (16 miles) and the long term (4 miles). Many species of wildlife require large patches of Shrub Steppe habitat to prosper. New roads would increase public access and potentially increase harassment of big game and greater sage-grouse. Additional roads would also provide more opportunity to introduce invasive plant species and noxious weeds, which reduce habitat quality.

Field development would disturb approximately 85 acres of habitat in the long term. This includes five wells, four miles of road, and collection facilities. The major difference between field development and exploration is the length of the habitat disturbance (long-term for field

development) and the lack of seasonal restrictions. The field development would cause permanent changes to habitat and year-long disturbance of wildlife.

The RFDS for geothermal leasing is the same for all alternatives. The BLM expects to issue approximately ten leases, allow five exploration projects, and to oversee the development of one geothermal generation facility. The activity would most likely take place in Medium to High potential areas (**Figure 3-18**).

Under the exploration phase, four miles of road per well and a well pad would be constructed. Each exploration project would disturb approximately 17.5 acres, 14.5 acres per road and 3 acres for each well pad. Development of the field would disturb an additional 42 acres. Total disturbance to habitat would be approximately 129 acres.

Field development would have a long-term disturbance on approximately 60 acres. The remaining 69 acres of disturbance would have short-term effects (e.g., temporary loss of habitat) because exploration disturbance would be reclaimed. It is unlikely that all of the 69 acres would be disturbed at the same time because exploration would take place at different times.

Twenty miles of new roads could lead to increased fragmentation of habitat in both the short term (16 miles) and the long term (4 miles). Many species of wildlife require large patches of habitat to prosper. New roads would increase public access and could increase harassment of wildlife. Additional roads would also provide more opportunity to introduce invasive plants, which would affect habitat quality.

Field development would disturb approximately 60 acres of habitat in the long term. This includes five wells, four miles of road, and collection facilities. The major difference between field development and exploration is the length of the habitat disturbance (long term for field development) and the lack of seasonal restrictions. The field development would have permanent changes on habitat and year-long disturbance of wildlife.

Solid Leasable Minerals

Approximately 591,200 acres (96% of the planning area) would be open for Solid Leasable Minerals operations. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 11,400 acres would protect ACECs, and RNAs. By closing these areas, approximately 6,400 acres of big game winter range would be protected.

It is anticipated that an additional, approximate 479 acres of surface would be disturbed when mining for phosphate. The impacts on wildlife habitat would be both short term (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 94% (450 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Mineral Materials

Approximately 581,100 acres (95% of the planning area) would be open for Mineral Materials disposal. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 21,500 acres would protect water and power withdrawals, RNAs, and historic sites and trails. By closing these areas, approximately 3,800 acres of big game winter range would be protected.

It is anticipated that an additional, approximate 133 acres of surface would be disturbed when mining for Mineral Materials. The impacts on wildlife habitat would be both short term (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 30% (100 acres), consisting of gravelly or rocky pit bottoms and rocky highwalls, of the disturbed acreage would be reclaimed. Around 29 acres of rocky pit floor and high walls would not be vegetated and would not provide wildlife habitat.

Locatable Minerals

Approximately 582,600 acres (95% of the planning area) would be open for the location of mining claims. There would be a nondiscretionary closure for 31,200 acres of public water reserves (PWRs), various withdrawals, and the portion of the Soda Springs Hills Management Area that was obtained using Land and Water Conservation Fund/Bonneville Power Authority (LWCF/BPA) funds. Mineral entry withdrawal of approximately 1,500 acres would be finalized to protect RNA's. By closing these areas, approximately 3,400 acres of big game winter range would be protected.

Impacts from Recreation Direction: OHV use would be managed under the following designations: undesignated – approximately 352,200 acres open to all vehicles - approximately 61,300 acres, closed to all vehicles - approximately 1,300 acres, and limited - approximately 199,000 acres. Over-the snow-vehicles would be restricted to designated routes on approximately 105,600 acres and would be closed on approximately 20,100 acres.

The use of OHVs would be expected to impact both wildlife and their habitat. Wildlife would be disturbed during important periods of their lifecycles such as winter and reproductive periods. This could result in decreased survival due to increased energy expenditures needed during the winter when big game try to avoid areas used by OHVs. OHV use in nesting areas could lead to nest abandonment and reduced reproductive success.

Habitat would be affected by the loss of vegetation due to pioneered roads and trails, increased fragmentation of habitat, and the spread of invasive plant species. Fish habitat would be impacted at stream crossings where riparian vegetation would be destroyed, thereby increasing stream sediment.

The Blackfoot and Pocatello SRMAs (approximately 55,200 acres) may reduce habitat quantity and quality because of infrastructure development and increased human use. Focusing recreational use in these SRMAs may decrease recreational use impact on wildlife and habitats in other parts of the planning area.

Special Recreation Permits (SRPs) would be issued in this alternative. Stipulations would be added to permits to protect sensitive habitats (riparian, big game winter range) and wildlife during sensitive times of the year (raptor nests).

Impacts from Special Designations Direction: Alternative A would have approximately 11,400 acres of ACECs and RNAs (2% of the planning area). Most of these areas were designated to preserve cultural sites, habitat for wildlife species, or a unique assemblage of plants. These areas would typically provide quality habitat for wildlife as they are managed with minerals and energy development restrictions (NSOs, discretionary closures, and withdrawals),

controlled recreation OHV use (closed or limited) and livestock grazing restrictions (unavailable or fenced).

4.2.6.5 Alternative B

Impacts from Special Status Species Direction: In general, management direction to prioritize and improve or restore special status species habitat (e.g., increase vegetative species diversity, composition, and canopy cover) for nesting, calving, rearing of young, food and shelter would similarly benefit wildlife habitat and species. Seasonal timing restrictions and buffers implemented for special status species due to temporary human disturbance or permanent surface occupancy (e.g., greater sage grouse, 0.6 mile buffers around active leks and 2.0 mile buffers around occupied leks for permanent surface occupancy of infrastructure) would also indirectly benefit fish and wildlife situated in proximity to these areas by limiting temporary disturbances and infrastructure that could impact them during similar seasons of nesting/calving and rearing of young.

Impacts from Vegetation Direction: Maintaining sagebrush structure and composition in a manner that would improve LHC classes would be emphasized. This impact on habitat could similarly affect representative wildlife species (specifically greater sage-grouse and Columbian sharp-tailed grouse). In this alternative, wildland fire suppression would continue to be emphasized.

Approximately 111,000 acres would be proposed for treatment in the sagebrush steppe types in this alternative, compared to approximately 35,000 acres in Alternative C and approximately 142,000 acres in Alternative D. Treatments would focus on stabilizing, restoring and rehabilitating vegetation resources in the short term, however they would also cause impacts over the long term by emphasizing stabilization, which would slow downward trending ecological conditions resulting from historic cultivation, livestock grazing, wildland fire suppression, habitat fragmentation and noxious weed invasions.

Using the indicators for the sagebrush steppe vegetation types, Alternative B would be similar to Alternative D in terms of acres in LHC “A” for the Low- and Mid-Elevation Shrub types. Alternative B would maintain approximately 19,000 acres more LHC “A” over the long term than Alternatives A and C.

Alternative B would also call for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution within these vegetation types. This alternative puts a greater emphasis on Aspen/Aspen Conifer Mix/Dry Conifer management; and, over the long term, would maintain the second most acreage (approximately 42,400 acres) in LHC class “A”, compared to approximately 38,800, 56,900 and 12,600 acres for Alternatives A, C and D, respectively. In Alternative B, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer type would be similar to Alternatives A and C and likely greater than Alternative D.

The following paragraphs discuss impacts by vegetation types and the BpS class used to evaluate the vegetation type.

The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage increases from 0 acres at the start of

the planning period, to approximately 7,200 acres after 10 years, and approximately 27,800 acres after 30 years. These figures are approximately 2,200 less acres after 10 years and approximately 9,700 less acres after 30 years than in Alternative A. At year 30, this would be 73% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding and rearing habitat.

In the crested wheatgrass seedings, only approximately 7,500 acres would remain in the uncharacteristic class after both 10 and 30 years. Approximately 34,600 acres of seedings would provide improved wildlife habitat because of increased shrub cover. At year 30, this would be 82% of the entire crested wheatgrass seedings, resulting in improved nesting/brooding and rearing habitat.

In the Mid-Elevation Shrub vegetation type, the BpS evaluation class is B. This vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. The planning period would begin with approximately 40,500 acres in class B and would increase to 78,400 acres after 10 years. After 30 years, only 41,500 acres would remain in Class B. At year 30, this would be 29.2% of the entire Mid-Elevation Shrub type, resulting in improved nesting/brooding and rearing habitat. After 10 years, Alternative B would provide- approximately 25,400 acres more than in Alternative A. After the 30 year period, Alternative B would provide approximately 11,900 acres more than in Alternative A.

In the Mountain Shrub type, BpS class B is used to evaluate wildlife habitat. Class B provides the required shrub cover for wildlife use. Class B would contain approximately 187,000 acres throughout the planning period. At year 30, this would be 100% of the entire Mountain Shrub type, resulting in improved nesting/brooding and rearing habitat Alternatives A and B would provide the same amount of Mountain Shrub in BpS class B throughout the planning period.

For the Aspen/Aspen Conifer Mix/Dry Conifer types, the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. At the beginning of the planning period, class B would contain approximately 500 acres. This would increase to approximately 800 acres by year 10 and to approximately 6,900 acres by year 30. At year 30, this would be 17% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved nesting/brooding and rearing habitat. Alternative B would provide the same short-term acres as in Alternative A. But in the long term, it would provide an additional, approximate 5,000 acres in BpS class B.

Impacts from Wildland Fire Management Direction: Wildland fire treatments such as prescribed fire and WFU would be used to move vegetation types toward FRCC 1. Low-Elevation Shrub, Perennial Grass, Aspen/Aspen Conifer Mix, and Mountain Shrub types would also receive nonfire treatments to minimize wildland fire. Impacts from wildland fire management on fish and wildlife are described in Section 4.2.3.6 under Vegetation.

In this alternative, approximately 124,300 acres would be treated. The treatments by vegetation type include approximately 18,950 acres of Low-Elevation Shrub, approximately 25,400 acres of Mid-Elevation Shrub, approximately 16,500 acres of Mountain Shrub, approximately 50,200 acres of Perennial Grass and Seedings, and approximately 13,200 acres of Aspen/Aspen Conifer Mix/Dry Conifer. Many of these treatments would use various methods to return wildland fire to its historical range. These treatment acres are less than in Alternative D (approximately 162,200

acres), more than double than in Alternative C (approximately 54,900 acres) and substantially more than in Alternative A (approximately 3,400 acres). As such, more impacts identified in Section 4.2.3.6, under Wildland Fire Management would occur in this alternative than in Alternatives A and C, but could be similar to Alternative D.

Impacts from Lands and Realty Direction: Approximately 56,300 acres (Zone 4) would be identified for disposal. See action B-LR-3.1.3 for criteria used during land tenure adjustment decisions. These criteria could be used to retain important wildlife habitat even if it is identified for disposal. Fifty percent of Zone 4 (approximately 28,150 acres) would be expected to leave federal ownership during the planning period.

Zone 4 would contain approximately 15,700 acres of deer winter range, of which approximately 7,850 acres (4% of deer winter range in the planning area) of deer winter range would be expected to leave federal ownership. These acres may or may not retain their value as deer winter range. Alternative B would dispose of approximately 3,650 acres more than in Alternative A.

Approximately 590,000 acres would be open for LUA development, approximately 21,900 acres would be managed as avoidance areas, and approximately 1,900 acres would be closed. Alternative B would allow ROW development on approximately 28,300 acres more than Alternative A.

Impacts from Livestock Grazing Direction: Approximately 560,000 acres (91% of the planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would be available for livestock grazing on a temporary nonrenewable basis as a tool to maintain or enhance wildlife habitat (e.g., stimulate grass production by reducing dense old growth and reduce fire hazard by grazing the fine fuels). Livestock grazing would cease, except for trailing, on the BSD, unless rangeland health standards are being met with current grazing practices. This should improve riparian habitat along the Blackfoot River and improve habitat for fish. If livestock grazing adjustments would be required in other areas, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Impacts from Minerals and Energy Direction: Coordination with surface management agencies and private landowners would be required for minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be maintained or reestablished after minerals and energy-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities would be similar to Alternatives C and D. Alternative A would have no similar objective.

Alternative B establishes standards and guidelines for conducting minerals operations and reclamation. These include application of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a), mineral exploration and development operation standards and guidelines (Objective AA-ME-2.2), and actions to prevent release of sediment and contaminant release (Objective AA-ME 2.3). Application of these measures are anticipated to reduce related adverse impacts on fish and wildlife from mineral operations and to

ensure that lands rehabilitated from mineral development activities provide suitable habitat and forage.

If reclamation activities meet the maximum contaminant levels set for vegetation and water, it is anticipated that fish and wildlife would not be adversely affected. Forage and water would be safe to consume by wildlife. Ensuring that reclamation meets selenium standards would ensure that selenium does not bioaccumulate in reclamation plants, or the ecosystem and become toxic to wildlife.

These activities and impacts would be that same under alternatives C and D. Alternative A does not include specific planning direction in these areas.

Fluid Minerals

Alternative B identifies approximately 344,500 acres as open to leasing for Fluid Minerals exploration and development, compared to 602,600 acres identified in Alternatives A, C, and D. Of these acres open to leasing, approximately 34,800 acres would have no restrictions, 83,700 acres would have seasonal restrictions, and 226,000 acres would be subject to NSO stipulations to mitigate impacts on resources and resource uses. In addition, approximately 11,200 acres would be closed to Fluid Minerals Leasing, while approximately 258,100 acres in the Curlew area would be administratively unavailable.

Alternatives A, C, and D identify approximately 602,600 acres as open for Fluid Minerals exploration and development, with 61,200 acres, 58,900 acres, and 60,900 acres, respectively, having no restrictions; 227,400 acres, 96,300 acres, and 226,300 acres, respectively, having seasonal restrictions; and 314,000 acres, 347,000 acres, and 315,400 acres, respectively, being subject to NSO stipulations. Approximately 11,200 acres are closed to Fluid Mineral Leasing under Alternatives A, C, and D.

Under Alternative B, because of the acres closed to Fluid Mineral Leasing and acres identified as administratively unavailable, the acres protected by NSOs and seasonal restrictions are less because closed areas and administratively unavailable areas do not need seasonal restrictions and NSO stipulations.

The Curlew area, which is administratively unavailable for Fluid Minerals Leasing, contains approximately 258,100 acres. The area encompasses both the Curlew Sage-Grouse Planning Area and the portion of the South Magic Valley Sage-grouse Planning Area (Idaho Sage-grouse Advisory Committee 2006) within the PFO planning area.

Under this alternative, an NSO stipulation would protect approximately 18,700 acres in the Soda Hills Management Area and approximately 19,400 acres on the Bear Lake Plateau/Sheep Creek Hills.

Exploration and field development disturbances for Fluid Minerals would not take place on BLM- administered public lands in closed areas, areas administratively unavailable, or areas developed with NSO stipulations. Based on estimates from the RFDS, surface disturbance to these areas would decrease by 185 acres when compared to Alternatives A and D. Under Alternative B, both the 60 acres of long-term disturbance to habitat for field development and the 125 acres of short-term disturbance would be eliminated. The 20 miles of roads constructed

during exploration and field development under the other alternatives would not occur under Alternative B in areas closed, administratively unavailable, or developed with NSO stipulations.

Exploration and field development disturbances for geothermal resources would not take place on BLM-administered public lands in closed areas, areas administratively unavailable, or areas developed with NSO stipulations. Based on estimates from the RFDS, surface disturbance to these areas would be decreased by 129 acres when compared to Alternatives A and D. Under Alternative B, both the 60 acres of long-term disturbance to habitat for field development and the 69 acres of short–term disturbance would be eliminated. The 20 miles of roads constructed during exploration and field development, which would occur under the other alternatives, would not occur under Alternative B in areas closed or developed with NSO stipulations.

In areas closed, administratively unavailable, or developed with NSO stipulations, there would be no additional fragmentation of Shrub Steppe habitat caused by roads and well pads on public lands. Public access would not be enhanced by new roads, which would decrease disturbance to big game. This decreased disturbance could be especially important during the winter season when big game animals are stressed by winter conditions.

Introducing invasive species/noxious weeds would be reduced under this alternative because roads are a major source of introductions. This would help maintain the quality of wildlife habitat. Wildfires reduce the amount of usable big game winter range (at least during the short term) by decreasing the amount of shrubs. Fewer miles of roads, in areas closed or developed with NSOs, means reduced chances of accidentally starting wildfires with vehicles (from exhaust systems).

Developments with NSOs may shift exploration and field development to private land. This would help maintain the quality of wildlife habitat on public lands in the area. Private lands in the area that consist of cropland or nonnative grassland provide lower quality habitat than native rangelands.

An NSO stipulation in the Soda Springs Hills area would protect approximately 15,500 acres of winter habitat for mule deer and approximately 11,300 acres of elk winter range. The administratively unavailable Curlew area would protect approximately 37,000 acres of mule deer winter range, approximately 11,500 acres of elk winter range, and approximately 32,200 acres of year-long pronghorn habitat.

The most likely location for oil and gas exploration and development is on the Bear Lake Plateau/Sheep Creek Hills portion of the planning area.

During exploration of the Bear Lake Plateau/Sheep Creek Hills, seasonal restrictions to protect big game on winter ranges would be enacted (**Appendix D**). The restrictions would not allow disturbances to animals on 29,200 acres of deer winter range and 18,300 acres of elk winter range.

If oil and gas field development occurs on the Bear Lake Plateau/Sheep Creek Hills, NSO stipulations to protect ACEC and RNAs, historic trails, public water reserves, erodible soils, steep slopes, perennial streams, and riparian vegetation would be enacted. These NSO stipulations, though not specifically for wildlife habitat protection, would protect wildlife habitat on approximately 19,400 acres. The NSO stipulations would protect habitat on approximately

14,500 acres (49.6%) of deer winter range and approximately 6,000 acres (32.8%) of elk winter range. Because deer and elk winter ranges overlap, approximately 16,900 acres of big game winter range would be protected by NSO stipulations.

Solid Leasable Minerals

Alternative B would allow the leasing of approximately 582,400 acres (95% of the planning area) for Solid Leasable Minerals. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 20,200 acres would protect RNAs and the public land portion of the Soda Springs Hills Management Area. These areas, however, have little or no potential for solid leasable mineral development. By closing these areas, approximately 15,900 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 479 acres of surface would be disturbed when mining for phosphate in the eastern portion of the planning area. The impacts on wildlife habitat would be both short term (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 94% (approximately 450 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Mineral Materials

Alternative B would allow mineral disposal on approximately 582,400 acres (95% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 20,200 acres would protect RNA's and the public land portion of the Soda Springs Hills Management Area. By closing these areas, approximately 15,900 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 333 acres of surface would be disturbed when mining for Mineral Materials. The impacts on wildlife habitat would be both short term (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 30% (approximately 100 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Locatable Minerals

Locatable Minerals development would be allowed on approximately 564,900 acres (92% of the planning area). A nondiscretionary closure for approximately 29,700 acres of PWRs, various withdrawals, and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds would be conducted. A discretionary closure would protect approximately 17,300 acres in the Soda Springs Hills Management Area and Bowen Canyon Bald Eagle Sanctuary ACEC. Mineral entry withdrawal of approximately 1,900 acres would be finalized to protect RNA's. By closing these areas, approximately 16,900 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 105 acres of surface would be disturbed when mining for Locatable Minerals. The impacts on wildlife habitat would be both short term (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 21% (approximately 23 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Impacts from Recreation Direction: Approximately 12,700 acres (WSAs and RNAs) would be closed to OHV use. The remaining approximate 601,100 acres of the planning area would be designated as "limited" for OHV use. All WSAs, RNAs, and ACECs, the Pocatello SRMA, and the Soda Springs Hills Management Area would be closed to snowmobiles. Snowmobiles would also be limited to designated routes in all big game winter ranges. Snowmobiles would be prohibited on approximately 361,300 acres (59%) of the planning area. The remainder of the planning area would be open to snowmobiles.

The proliferation of roads and trails created by OHV users should be reduced. This would result in less habitat loss and fragmentation. It would also result in fewer disturbances to wildlife during critical periods of the year (nesting, calving/fawning). Other than Soda Springs Hills Management Area, big game winter ranges would see no restrictions to snowmobiles. Impacts from snow machines on individual ranges would be similar to those in Alternative A.

Management of SRMAs and Special Recreations Permits would have impacts similar to those identified in Alternative A.

Impacts from Special Designations Direction: An RNA of approximately 400 acres would be proposed. It would have the same type of restrictions as RNAs in Alternative A and should impact wildlife habitat in the same manner.

4.2.6.6 Alternative C

Impacts from Special Status Species Direction: In general, management direction to prioritize and improve or restore special status species habitat (e.g., increase vegetative species diversity, composition, and canopy cover) for nesting, calving, rearing of young, food and shelter would similarly benefit wildlife habitat and species. Seasonal timing restrictions and buffers implemented for special status species due to temporary human disturbance or permanent surface occupancy (e.g., greater sage grouse, 0.6 mile buffers around active leks) would also indirectly benefit fish and wildlife situated in proximity to these areas by limiting temporary disturbances that could impact them during similar seasons of nesting/calving and rearing of young.

Impacts from Vegetation Direction: Alternative C would continue to emphasize wildland fire suppression and priority would be placed on providing maxim protection to sagebrush habitat and, in turn, its representative species. This alternative would also emphasize maintaining sagebrush structure and composition in a manner that would improve LHC classes.

Approximately 35,000 acres would be proposed for treatment in the sagebrush steppe types compared to approximately 111,000 acres in Alternative B and approximately 142,000 acres in Alternative D. Treatments would focus on stabilizing, restoring and rehabilitating vegetation structure and composition.

Using the indicators for the sagebrush steppe types, Alternative C would be similar to Alternative A in terms of acres in LHC "A" for the Low- and Mid-Elevation Shrub types. Alternative C would maintain approximately 17,000 acres less in LHC class "A" than Alternative B and approximately 24,000 acres less LHC class "A" than in Alternative D over the long term.

Alternative C would also call for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution within these vegetation types. This alternative would maintain the most acreage (approximately 56,900 acres) in LHC class "A", compared to approximately 38,800, approximately 42,400 and approximately 12,600 acres in Alternatives A, B and D, respectively. In Alternative C, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer types would be similar to Alternatives A and B and likely greater than in Alternative D. This alternative would also call for a very minimal amount of treatment in the Wet/Cold Conifer, Riparian and Other/Vegetated Lava vegetation types, totaling approximately 400 acres.

Table 4.2.6-3 identifies the vegetation types and the BpS class used to evaluate impacts on special status fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage would increase from 0 acres to approximately 7,200 acres after 10 years, and approximately 36,400 acres after 30 years. At year 30, this would be 96% of the entire Low-Elevation Shrub type resulting in improved nesting/brooding and rearing habitat. This would be approximately 2,200 less acres after 10 years and approximately 1,100 less acres after 30 years when compared to Alternative A. The short-term results are the same as for Alternatives B and C; but in the long term, Alternative C provides approximately 8,600 more acres in BpS class C that in Alternative B.

In the crested wheatgrass seedings approximately 40,800 acres would remain in the uncharacteristic class after both 10 and 30 years. At year 30, this would be 3% of the entire crested wheatgrass seedings would result in improved nesting/brooding and rearing habitat. In Alternative C, approximately 1,300 acres of seedings would provide improved wildlife habitat because of increased shrub cover. This would be a slight improvement over Alternative A, but much less than the approximately 34,600 acres improved in Alternative B.

In the Mid-Elevation Shrub type, the BpS evaluation class is B. This vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. The planning period would begin with approximately 40,500 acres in class B and would increase- to approximately 69,600 acres after 10 years. After 30 years, only approximately 37,500 acres would remain in class B. At year 30, this would be 26% of the entire Mid-Elevation Shrub type resulting in improved nesting/brooding and rearing habitat. After 10 years Alternative C would provide approximately 16,600 acres more than in Alternative A, but approximately 8,800 acres less than inn Alternative B. After the 30 year period Alternative C would provide approximately 7,800 acres more than in Alternative A, but approximately 4,100 acres less than in Alternative B.

In the Mountain Shrub type, BpS class B is used to evaluate wildlife habitat. Class B provides the required shrub cover for wildlife use. Class B would contain approximately 187,000 acres during the planning period. Alternatives A, B and C would provide the same amount of Mountain Shrub in BpS class B throughout the planning period.

For the Aspen/Aspen Conifer Mix/Dry Conifer types the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. At the beginning of the planning period, class B would contain approximately 500 acres; it would increase to approximately 800 acres by year 10 and to approximately 29,300 acres by

year 30. At year 30, this would be 72% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types resulting in improved nesting/brooding and rearing habitat.

The short-term acres are equal in Alternatives A, B and C. The long-term results in Alternative C would be an increase of approximately 27,400 acres above Alternative A, and approximately 22,400 acres above Alternative B.

Impacts from Wildland Fire Management Direction: Treatments such as prescribed fire and WFU would be used to move vegetation types toward FRCC 1, returning wildland fire to its natural role in the ecosystem. The Low-Elevation Shrub, Perennial Grass, Aspen/Aspen Conifer Mix, and Mountain Shrub types would be treated to minimize wildland fire. Impacts from wildland fire management on fish and wildlife are described in Section 4.2.3.6, under Vegetation Management.

In this alternative, approximately 54,900 acres would be treated. The treatments by vegetation type include approximately 16,650 acres of Mid-Elevation Shrub, approximately 16,600 acres of Mountain Shrub, approximately 1,300 acres of Perennial Grass and Seedings, approximately 20,000 acres of Aspen/Aspen Conifer Mix/Dry Conifer, and approximately 70 acres of Wet/Cold Conifer. Many of these treatments would use various methods to return wildland fire to its historical range. These treatment acres would be less than in Alternative D (approximately 162,200) and in Alternative B (approximately 124,300) and substantially more than in Alternative A (approximately 3,400). As such, fewer impacts identified in Section 4.2.3.4 (*Impacts Common to All Alternatives*), under Wildland Fire Management would occur in this alternative than in Alternatives B and D, but could be more than in Alternative A.

Impacts from Lands and Realty Direction: Approximately 49,900 acres would be in Zone 4. 50% of Zone 4 (approximately 24,950 acres) would be expected to leave federal ownership.

Zone 4 would contain approximately 15,700 acres of deer winter range. During the planning period, approximately 7,850 acres of deer winter range (4% of deer winter range in the planning area) would be expected to leave federal ownership. These acres may or may not retain their value as deer winter range. Alternative C would dispose of approximately 3,650 more acres of deer winter range than in Alternative A, and the same amount as in Alternative B.

Approximately 590,000 acres would be open for LUA development, approximately 21,900 acres would be managed as avoidance areas and approximately 1,900 acres would be closed. Alternative C would allow LUA development on approximately 28,300 acres more than in Alternative A, but would be the same as in Alternative B.

Impacts from Livestock Grazing Direction: Approximately 527,800 acres (86% of planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would not be available for livestock grazing. The deer winter range in that area currently being grazed should improve with reduced livestock grazing. Livestock grazing would also cease, except for trailing, on the BSD. This should improve riparian habitat along the Blackfoot River and improve habitat for fish. If livestock grazing adjustments would be required in other areas, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Impacts from Minerals and Energy Direction: Coordination with surface management agencies and private landowners would be called for on minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be maintained or reestablished from minerals and energy-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities and impacts would be similar to Alternatives B and D and would be greater than in Alternative A, where no similar objective would be stated.

Fluid Minerals

Under Alternative C, approximately 347,300 acres would be leased with an NSO stipulation, and seasonal restrictions would be placed on approximately 196,300 acres. Approximately 44,800 acres leased with an NSO stipulation in the Bear Lake Plateau/Sheep Creek Hills area would protect sensitive plant species habitat, deer winter range, ACEC and RNAs, big game winter range, and riparian and perennial streams (**Tables 4.3.4-2** and **4.3.4-3**).

Solid Leasable Minerals

The leasing of approximately 582,400 acres (95% of the planning area) for Solid Leasable Minerals would be allowed. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 20,200 acres would protect RNA's, and the Soda Springs Hills priority management area. By closing these areas, approximately 19,300 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 479 acres of surface would be disturbed when mining for phosphate in the eastern portion of the planning area. The impacts on wildlife habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 94% (approximately 450 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Mineral Materials

Mineral disposal would be allowed on 582,400 acres (95% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 57,800 acres would protect RNA's, the Soda Springs Hills priority management area, BSD, rare plant habitat, and various withdrawal areas. By closing these areas, approximately 19,300 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 333 acres of surface would be disturbed when mining for Mineral Materials. The impacts on wildlife habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 30% (approximately 100 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat

Locatable Minerals

Same as Alternative B.

Impacts from Recreation Direction: OHVs would be managed in the same manner as in Alternative B. Over-the-snow vehicle management would be more restrictive in this alternative.

In addition to the areas closed in Alternative B, snowmobiles are limited to designated routes in all big game winter ranges**.** Snowmobiles would be prohibited on approximately 361,300 acres (59% of the planning area). Disturbance of big game on winter ranges would be reduced. This should impact survival and reproduction as less energy would be expended to avoid snowmobiles.

Management of SRMAs and SRPs would have impacts similar to those identified under Alternative A.

Impacts for Special Designations Direction: Same as Alternative B.

4.2.6.7 Alternative D

Impacts from Special Status Species Direction: Current management of special status species habitats would have negligible impacts on fish and wildlife species. Actions taken to maintain or improve special status species habitats would have similar effects to fish and wildlife habitat in close proximity to special status species habitat.

Impacts from Vegetation Direction: Alternative D would continue to emphasize wildland fire suppression and priority would be placed on protecting, maintaining and providing resources and resource uses for commercial use while secondarily providing protection to sagebrush habitat and, in turn, their representative species. This alternative would also emphasize maintaining sagebrush structure and composition in a manner that would improve LHC classes, particularly LHC class "A" to its highest level, relative to current conditions and those predicted in the other alternatives.

Approximately 142,000 acres would be proposed for treatment in the sagebrush steppe types in this alternative compared to approximately 111,000 acres in Alternative B and approximately 35,000 acres in Alternative C. Treatments would focus on stabilizing, restoring and rehabilitating vegetation resources.

Using the indicators for the sagebrush steppe types, Alternative D would maintain the most LHC class "A" for the Low- and Mid-Elevation Shrub types over the long term (approximately 176,000 acres). This would be approximately 21,500 acres more LHC class "A" than in Alternative A, approximately 7,100 acres more LHC class "A" than Alternative B, and approximately 24,300 acres more LHC class "A" than Alternative C over the long term.

Alternative D also calls for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution within this vegetation type. Alternative D maintains the least acreage (approximately 12,600 acres) in LHC class "A", compared to approximately 38,800, approximately 42,400 and approximately 56,900 acres in Alternatives A, B and C, respectively. In Alternative D, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer type would be less than in the other three alternatives. This alternative would also call for a very minimal amount of treatment in the Wet/Cold Conifer, Riparian and Other/Vegetated Lave vegetation types, totaling approximately 400 acres.

Table 4.2.6-3 identifies the vegetation types and the BpS class used to evaluate impacts on special status fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage would increase

from 0 acres at the start of the planning period, to approximately 9,400 acres after 10 years, and approximately 37,500 acres after 30 years. At year 30, this would be 98% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding and rearing habitat. These acreage figures would be identical to totals in Alternative A. The short-term results would be an increase of approximately 2,200 more acres than in Alternatives B and C. In the long term, Alternative D would provide approximately 1.100 more acres in BpS class C that in Alternative C and approximately 9,700 more acres than in Alternative B.

In the crested wheatgrass seedings, 0 acres would remain in the uncharacteristic class after both 10 and 30 years. This would compare to approximately 42,100 uncharacteristic acres in Alternative A, approximately 7,500 uncharacteristic acres in Alternative B, and approximately 40,800 uncharacteristic acres in Alternative C.

In the Mid-Elevation Shrub type, the BpS evaluation class is B. This vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. The planning period would begin with approximately 40,500 acres in class B and would increase to approximately 99,800 acres after 10 years. After 30 years, only approximately 51,600 acres would remain in Class B. At year 30, this would be 36% of the entire Mid-Elevation Shrub type, resulting in improved nesting/brooding and rearing habitat. After 10 years Alternative D would provide approximately 46,800 more acres in BpS class B than in Alternative A, approximately 21,400 acres more than in Alternative B, and approximately 30,200 acres more than in Alternative C. After the 30-year period Alternative D would provide approximately 1,400 less acres in BpS class B than in Alternative A, approximately 10,100 acres more than in Alternative B, and approximately 14,200 acres more than in Alternative C.

In the Mountain Shrub type, BpS class B is used to evaluate wildlife habitat. Class B provides the required shrub cover for wildlife use. Class B would contain approximately 187,000 acres throughout the life of the plan. At year 30, this would be 100% of the entire Mountain Shrub type, resulting in improved nesting/brooding and rearing habitat. Alternatives A, B, C and D provide the same amount of Mountain Shrub in BpS class B throughout the planning period.

For the Aspen/Aspen Conifer Mix/Dry Conifer types, the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. At the beginning of the planning period class B would contain approximately 500 acres; it would increase to approximately 800 acres by year 10 but would decrease to approximately 300 acres by year 30. At year 30, this would be 0.7% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types resulting in improved nesting/brooding and rearing habitat. The short-term acres would be equal in Alternatives A, B, C and D. The long-term results for Alternative D would be a decrease of approximately 500 acres below Alternative A in BpS class B, approximately 6,600 acres below Alternative B, and approximately 29,000 acres below Alternative C.

Impacts from Wildland Fire Management Direction: Wildland fire treatments such as prescribed fire and WFU would be used to move vegetation types toward FRCC 1, returning wildland fire to its natural role in the ecosystem. The Low-Elevation Shrub, Perennial Grass, Aspen/Aspen Conifer Mix, and Mountain Shrub types would be treated to minimize wildland fire. Impacts from wildland fire management on fish and wildlife are described in Section 4.2.3.6, under Vegetation.

In this alternative, approximately 162,200 acres would be treated. These treatments would affect approximately 9,500 acres of Low-Elevation Shrub, approximately 64,000 acres of Mid-Elevation Shrub, approximately 15,000 acres of Mountain Shrub, approximately 53,300 acres of Perennial Grass and Seedings, approximately 20,000 acres of Aspen/Aspen Conifer Mix/Dry Conifer, and approximately 70 acres of Wet/Cold Conifer. Many of these treatments would use various methods to return wildland fire to its historical range. These treatment acres would be the greatest compared to Alternative A (approximately 3,400 acres), Alternative B (approximately 124,300 acres) and Alternative C (approximately 54,900 acres).

Impacts from Lands and Realty Direction: Approximately 121,400 acres would be in Zone 4. 50% (approximately 60,700 acres) would be expected to leave federal ownership during the planning period. Approximately 590,000 acres would be open for ROW development and approximately 23,800 acres would be managed as avoidance areas.

Zone 4 would contain approximately 46,000 acres of deer winter range. During the planning period approximately 23,000 acres of deer winter range (12% of deer winter range in the planning area) would be expected to leave federal ownership. These acres may or may not retain their value as deer winter range. Alternative D would dispose of approximately 41,800 more acres than in Alternative A and approximately 15,000 acres more than in Alternatives B and C. Alternative D would allow LUA development on approximately 28,300 more acres than in Alternative A, but would be equal to Alternatives B and C in this respect. Alternative D would not close areas to LUA development.

Impacts from Livestock Grazing Direction: Approximately 527,900 acres (86% of the planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would not be available for livestock grazing. The deer winter range in the area should improve with reduced livestock grazing. Livestock grazing would also cease, except for trailing, on the BSD. This should improve riparian habitat along the Blackfoot River and improve habitat for fish. If livestock grazing adjustments would be required in other areas, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Impacts from Minerals and Energy Direction: Coordination with surface management agencies and private landowners would be called for on minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be maintained or reestablished from minerals and energy-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities and impacts would be similar to Alternatives B and C and would have a greater impact than in Alternative A, where no similar objective is stated.

<u>Fluid Minerals</u>
The amount of acreage leased with NSO stipulations is different for each alternative. Alternative D stipulates approximately 315,300 acres leased with NSOs and places seasonal restrictions on approximately 226,300 acres. The stipulations would protect habitat in ACECs and RNAs, as well as big game winter range, riparian areas, and perennial streams (**Tables 4.3.4-2** and **4.3.4-3**).

Solid Leasable Minerals

Alternative D would allow the leasing of approximately 597,500 acres (97% of the planning area) for Solid Leasable Minerals. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 5,100 acres would protect RNA's and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. By closing these areas, approximately 7,200 acres of big game winter range would be protected. These areas have little or no potential for solid leasable mineral development however.

It is anticipated that an additional, approximate 479 acres of surface would be disturbed when mining for phosphate in the eastern portion of the planning area. The impacts on wildlife habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 94% (approximately 450 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Mineral Materials

Alternative D would allow disposal on approximately 597,500 acres (97% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 5,100 acres would protect RNA's and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. By closing these areas, approximately 7,200 acres of big game winter range would be protected.

It would be anticipated that an additional, approximate 333 acres of surface would be disturbed when mining for Mineral Materials. The impacts on wildlife habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 30% (approximately 100 acres) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide wildlife habitat.

Locatable Minerals

Same as Alternative A.

Impacts from Recreation Direction: Lands would be managed for a variety of motorized, non-motorized and mechanical opportunities. A comprehensive approach to travel planning would be developed in this alternative that would designate all public land in the planning area (approximately 613,800 acres) as either limited/existing (or designated) for OHV use or closed to OHV use. Alternative D would propose approximately 1,300 acres to be closed to OHV travel, which would be similar to the other alternatives, which range from approximately 1,300 to 1,700 acres. With regard to non-OHV use in Alternative D, impacts (defined in Section 4.2.3.3, under Recreation) would be similar to actions proposed in Alternatives A, B and C.

Impacts from Special Designations Direction: Similar to Alternative A, there would be no additional management actions that would affect vegetation types and their representative fish and wildlife resources that have not already been discussed in Section 4.2.3.3 under Special Designations.

4.2.6.8 Cumulative Impacts

Proposed management decisions combined with other past, present, and reasonably foreseeable actions would produce cumulative impacts on fish and wildlife resources found within the planning area.

Past, Current, and Future Actions: Mineral development has occurred across this region in the past and would continue into the future. In the past, approximately 14,984 acres have been disturbed by phosphate mining with almost 20,000 acres by all types of mineral development. This amount of surface disturbance occurring on public, Forest Service, State, and private land, in combination with present and reasonably foreseeable future actions (approximately 5,252 acres of phosphate mining with over 6,000 total acres projected from all types of mineral development) could have varying degrees of impacts on vegetation types and their representative fish and wildlife and species. Protection would have to rely on site specific conditions of approval prepared for future development proposals. Other activities such as road building would increase access to large tracts of land and could cause impacts on fish and wildlife species that are dependent upon this type of habitat for survival.

The overall cumulative impact of proposed management decisions for all the resources and resource uses on fish and wildlife species is projected to produce few, short-term effects that would be localized in nature. Major contributors would include recreational OHV activities throughout most of the planning area; livestock grazing; habitat destruction from minerals and energy development; some vegetation treatments, such as sagebrush removal and prescribed fire; and projects such as livestock grazing water developments, which would result in the redistribution of livestock into previously unused areas that are sensitive to disturbance.

Other impacts may include the loss of animals or fish from minerals and energy development, prescribed fire or wildland fire. Impacts from habitat fragmentation due to development, changes in OHV use due to increased roads, and rock collection could also occur.

These activities would concentrate livestock grazing pressures and recreation use onto other vegetation types, impacting certain fish and wildlife species. The cumulative impacts of all these uses could lead to lower populations of fish and wildlife species in the future.

4.2.6.9 Tribal Treaty Rights and Interests

The wildlife species of cultural significance to the Shoshone-Bannock tribes within the planning area are listed in **Appendix M**. In general, public lands are open to hunting and gathering under treaty rights. Alternative C, with 267,400 acres of enhanced management for special status species, would provide the best opportunity for hunting or gathering of wildlife species. Alternative D would provide the least opportunity, as this alternative has the greatest potential to decrease the public land base acres, which could lead to a decrease in deer winter range and reduction in both Columbian sharp-tailed and greater sage-grouse habitat. Alternative D would also protect a relatively small portion of the planning area from Fluid Minerals development impacts through the use of NSO stipulations.

4.2.7 SPECIAL STATUS SPECIES

4.2.7.1 Summary

This section presents potential impacts on special status fauna and special status plants from management actions proposed in this RMP. Existing conditions concerning special status species are described in Section 3.2.6.

Short-term impacts that would affect special status fauna would primarily result from surface-disturbing activities that are associated with fire and nonfire related vegetation treatments, range improvements, land tenure adjustments, and mineral exploration and development activities. These same activities would have long term impacts resulting from changes in overall habitat size, condition, and connectivity.

Special status plants would primarily be affected by surface-disturbing activities in all alternatives and the subsequent spread of invasive species/noxious weeds. A summary of major surface-disturbing actions with the potential to affect special status plants is provided in **Table 4.2.7-1**. Although adverse impacts on special status plant habitat would be mitigated and/or avoided for all BLM-authorized activities, surface disturbances can result in the loss of individual plants and the degradation of habitat.

Table 4.2.7-1. Acres of Special Status Plant Habitat on Public Lands Potentially Affected by Surface Disturbance Activities by Alternative

Surface Disturbing Activity	Alternative			
	A	B	C	D
WFU (Appropriate)	N/A	34	21	124
Prescribed Fire	0.0	197	197	197
Livestock Grazing (Available)	205	205	186	205
Solid Leasable Minerals (Phosphate)	312	313	313	313
Mineral Materials (Open)	261	313	0.0	313
Locatable Minerals	280	280	280	280
Fluid Minerals	261	261	0.0	261
OHV Use (Undesignated)	142	0.0	0.0	0.0

The spread of invasive species/noxious weeds is also a threat to special status plant habitat. In general, weed treatments may result in some short-term (1-10 years) loss or damage to individual special status plants, but over the long term (10-30 years), special status plant habitat would be improved through reducing or eliminating competition. Management actions to improve the health of riparian areas and fish and wildlife habitat could also result in improvements of special status plant habitat.

Considering that 137 acres of special status plant habitat occurs in areas undesignated to OHV use, special status plant habitat is most at risk from OHV use in Alternative A. Alternative C

would reduce the acreage of special status plant habitat available to livestock grazing and effects from livestock grazing would be least in this alternative. Livestock grazing puts special status plant habitat at equal risk in Alternatives A, B, and D. Although a majority of minerals and energy development is open to special status plant habitat across all alternatives there is Low potential for development to occur in special status plant habitat.

Nonetheless, Alternative C would be the best for providing long-term maintenance of special status plant habitat on public lands through mineral closures and NSO stipulations. Considering that Alternative C allows for the greatest amount of special status plant habitat to burn, fire effects on special status plant would be greatest in Alternative C. The affects of WFU and prescribed fire would be least in Alternative A.

4.2.7.2 Methods of Analysis

In the following sections, impacts were quantified, where possible, primarily using GIS applications. In the absence of quantitative data, best professional judgment was used.

Terms referring to impact intensity, context, and duration were used in the impact analysis for special status fauna and focused primarily on short term and long term impacts as defined below:

- Short Term: These types of impacts, most often a result of some type of vegetation treatment, would occur in the first 10 years.
- Long Term: Impacts that occur as a result of actions taken in the short term and/or natural succession that would occur in the window of 11-30 years.

Two federally listed (gray wolf and Utah valvata snail) and numerous BLM sensitive species occur throughout various habitats across the planning area. A complete list of these species is found in **Appendix N**. Chapter 2 identifies 17 special status species for which specific management guidance has been identified. Impacts on these species would be discussed in terms of the vegetation types they inhabit.

Vegetation modeling describing the current LHC and the DFCs after 10 and 30 years is presented in detail in Section 4.2.6.3 (Vegetation). This model incorporated both natural succession and proposed fire and nonfire vegetation treatments to the vegetation types found across the planning area to assist in the analysis of the alternatives.

Table 4.2.7-2 identifies special status fauna identified in Chapter 2 as having specific management guidance. It is expected that impacts on a particular vegetation type would be reflective on the special status species found within that vegetation type. Given the wide range of mobility of many of the special status species (gray wolf, bald eagle) or very habitat specific species (Utah valvata snail), species were placed in the vegetation type(s) they would most typically be found in with the understanding their presence could certainly overlap other vegetation types.

Table 4.2.7-2. Representative Special Status Species by Vegetation Type and Approximate Acres of Public Land

Vegetation Type	Public Land Acres	Representative Special Status Species
Low-Elevation Shrub	144,800	Colombian sharp-tailed grouse, pygmy rabbit, greater sage-grouse
Mid-Elevation Shrub	142,000	
Mountain Shrub	187,100	
Natural Juniper	14,400	Ferruginous hawk, Loggerhead Shrike, Cliff chipmunk
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	**gray wolf**
Wet/Cold Conifer	700	
Riparian	6,600	bald eagle, boreal toad, Northern leopard frog,
Other Habitat (Streams/Rivers/Lakes)	139 miles	American white pelican, Bear Lake sculpin, Bear Lake cutthroat trout, Bear Lake whitefish, Bonneville cisco, Bonneville cutthroat trout, Bonneville whitefish, **Utah valvata snail**, Yellowstone cutthroat trout

Species with **bold** typeface are federally listed species and all other species identified are BLM Sensitive species found within the planning area.

Based upon clarifying management direction (Table 2-1, Chapter 2) to protect sage-grouse leks from disturbances (i.e., temporary human or permanent infrastructure surface occupancy) impact analysis related to the buffers of 0.6 and 2.0 miles for active and occupied leks, respectively, has been updated. This distinction between buffers for active and occupied leks is more discriminating because of the temporary or permanent nature of the disturbance but resulted in approximately the same number of acres being analyzed as in the RMP/Draft EIS and does not represent an addition or expansion to any allocation identified in the Draft EIS.

For the analysis of impacts on special status plants, the duration of these potential effects is discussed as short-term (0-10 years) or long-term (11-30 years). Special status plants that have the potential to occur within the planning area, potential threats, and associated vegetation are described in **Section 3.2.7.2**, Chapter 3. The best available scientific information and professional judgment was used concerning the species and where they exist within the planning area.

Indicators: Indicators were developed to assist in evaluating the impacts of management actions guiding other resources and resource uses on special status fauna and plants. For special status fauna, these indicators focus on acres of habitat, changes in the habitat condition (or LHC class) of a vegetation type or changes in the types of habitat either due to human treatment, natural succession or catastrophic events (fire/floods). The indicators developed for special status fauna are as follows:

- Juniper – number of encroachment acres.
- Number of acres in proposed Special Status Species Priority areas.
- Change in acres of desired BpS class of Low- and Mid-Elevation and Mountain Shrub types.

- Seedings – number of acres with sagebrush canopy.
- Number of acres of greater sage-grouse and Colombian sharp-tailed grouse habitat in land tenure adjustment areas.
- Riparian – miles of streams at PFC.

Table 4.2.7-3 qualitatively summarizes each of the indicators for impact on special status fauna (using current conditions as a benchmark) by alternative.

Table 4.2.7-3. Comparison of Special Status Species Indicators by Alternative

Indicator	Alternative			
	A	B	C	D
Number of acres in proposed Special Status Species Priority areas	NC 0.0	NC 0.0	Increase 267,400	NC 0.0
Juniper - number of encroachment acres	No Change	Decrease	Decrease	Decrease
Number or acres in desired BpS classes in the Low- and Mid-Elevation and Mountain Shrub types after 30 years	NC 254,100	Increase 256,300	Increase 260,800	Increase 276,100
Seedings – acres removed from uncharacteristic class	NC 0.0	Increase 34,600	Increase 1,300	Increase 42,100
Acres of greater sage-grouse and Colombian sharp-tailed grouse habitat contained in land tenure adjustment zones	NC 8,100	Increase 49,400	Increase 44,300	Increase 100,200
Riparian – miles of streams in PFC	36 miles	Increase	Increase	Increase

For special status plants, indicators are described as follows:

- Number of habitat acres affected.
- Amount of habitat acreage maintained in federal ownership.

Methods and Assumptions. Impacts on special status fauna are largely driven by habitat conditions and are therefore closely tied to how vegetation types are affected by the proposed management actions identified for each alternative addressed in Chapter 2. Many of the assumptions identified in Section 4.2.6.2 (Vegetation) are applicable to special status fauna and are listed below:

- Properly functioning riparian areas provide high quality habitat for both fish and wildlife.
- Public lands would be subject to fire and nonfire treatment methods including mechanical and chemical treatments during the first 10 years following plan implementation. Treatments conducted in the first 10 years would be conducted primarily to reduce fire potential and make progress towards FRCC 1. Prescribed fire would occur mainly in the early spring or late fall.
- Invasive species/noxious weeds would continue to be introduced and spread into native plant communities as a result of ongoing natural and human-induced activities (e.g., livestock and special status fauna foraging, recreational activities). Disturbances to native plant communities would also expand opportunities for the spread of nonnative invasive plant species.
- Invasive species/noxious weeds would continue to be treated on public lands.

- Special status fauna populations are closely linked to habitat. Sufficient habitat of high quality would result in maintaining/increasing special status fauna populations.
- If land tenure adjustments within the disposal zone (Zone 4) result in a loss of public lands, the amount of special status fauna habitat would be reduced.
- Recreational demand and use would continue to increase.
- Vegetation would generally improve as fire returns to its natural role.
- Special status fauna would prefer LHC-A.
- Because only a very small portion of public lands in the planning area is in close proximity to Bear Lake, the BLM's management of the habitat found on these up-gradient public lands would not impact Bear Lake endemic fish (Bear Lake sculpin, Bear Lake cutthroat trout, Bear Lake whitefish, Bonneville cisco, Bonneville whitefish).

Assumptions to assist in the analysis of special status plants are as follows:

- Approximately 5,000 acres/year of public land would be inventoried for special status plants habitat.
- Approximately six special status plant populations per year would be monitored.
- Mechanical vegetation treatments (e.g., drill seeding, mowing, and chaining) on public land would not occur in special status plant habitat.
- Only selective weed treatments (e.g., spot spraying, manual removal) on public lands would be allowed in special status plant habitat. Mechanical treatments would not be allowed in special status plant habitat.
- Motorized and mechanized use on public lands would not be allowed in special status plant habitat.
- That unauthorized use that is occurring special status plant habitat on public lands would not be validated (Lands Direction).
- Livestock grazing in special status plant habitat is available on Forest Service and privately owned lands.
- Special status plant habitat on the Forest Service and US Department of the Interior, Fish and Wildlife Service (USFWS) lands would be retained in federal ownership.
- Weed treatments would be treated at approximately 5 acres/year in special status plant habitat.
- Special status plant habitat is open on the Forest Service to Solid Leasable Minerals, Mineral Materials, Locatable Minerals, and Fluid Minerals.
- Special status plant habitat would is closed on the Bear Lake National Wildlife Refuge (NWR) to Solid Leasable Minerals, Mineral Materials, Locatable Minerals, and Fluid Minerals.

In all alternatives, Special Status Species direction would not be affected by Air Quality and Visual Resources so these resources are not further addressed under this section.

4.2.7.3 Impacts Common to All Alternatives

Impacts from Cultural Resources Direction: Surface-disturbing activities, such as excavations, would have direct impacts on special status fauna if these activities were conducted in habitat that supports special status species. These activities would be subject to project-level analyses to identify and assess specific impacts. However, impacts on special status plants are not expected, considering that few excavations (if any) are expected to occur and considering the small area (approximately 11 square feet) of surface disturbance.

Cultural resources can be located in any of the vegetation types present, thus all special status fauna have the potential to be impacted. However, mitigation measures would be incorporated to avoid or minimize impacts on special status fauna. Cultural resources are not likely to occur in special status plant habitat in mountainous areas or dry shrub lands.

Impacts to greater sage-grouse from cultural resources management direction would be similar to those discussed above. Cultural resource activities (e.g., surveys) in sage-grouse habitat may result in disturbance to individual sage-grouse. Any surface disturbing activities in sage-grouse habitat may result in the potential loss of habitat for sage-grouse. Mitigation measures, such as timing restrictions for nesting and brood rearing, would be implemented to avoid or reduce impacts to sage-grouse. Also, surface disturbing activities would occur on relatively small acreages of public lands, and therefore, would be unlikely to impact greater sage-grouse on a large scale.

Impacts from Soils Direction: Actions under this direction would not impact special status fauna. Stream management and restoration of riparian areas could impact approximately 110 acres of special status plant habitat (e.g., red glasswort, iodinebush, and Hoary willow) in riparian areas. Stream management and restoration can include activities such as fencing, adjustments to livestock grazing management, weed treatments, and revegetation. Although there may be some short-term loss of individual plants from weed treatments and revegetation actions, over the long-term, stream management and restoration actions would contribute towards maintaining and improving special status plant habitat.

Impacts from Paleontological Resources Direction: Surface-disturbing activities, such as excavations, would have direct impacts on special status fauna if these activities were conducted in habitat that supports special status species. These activities would be subject to project-level analyses to identify and assess specific impacts.

Paleontological resources can be located in any of the vegetation types present in the planning area, thus all special status fauna species have the potential to be affected. However, mitigation measures would be incorporated to avoid or minimize impacts on special status fauna.

Impacts on special status plants are not expected, considering that few excavations (if any) are expected to occur. There would be some potential for paleontological resources to be present in Starveling milkvetch and silky cryptantha habitat.

Impacts to greater sage-grouse from paleontological resources management direction would be similar to those discussed above. Any non-surface disturbing activities, such as paleontological surveys, during nesting or brood rearing periods would likely disrupt the behavior of greater sage-grouse while surface disturbing activities would result in the potential loss of habitat for the

sage-grouse. Mitigation measures, such as timing restrictions for nesting and brood rearing, would be implemented to avoid or reduce impacts to the species. Also, surface disturbing activities would occur on relatively small acreages of public lands, and therefore, would not be likely to impact sage-grouse on a large scale.

Impacts from Vegetation Direction: Vegetation management actions in all alternatives would be implemented as appropriate to maintain the 36 miles of riparian habitat that are in PFC, to improve riparian areas identified as nonfunctioning/functioning at risk, and to make measurable or observable progress toward PFC. These actions would directly affect special status fauna that occupy riparian habitat by minimizing soil compaction and erosion. There are several special status fauna species that inhabit riparian areas that occur in the planning area. These species include the bald eagle, boreal toad, and northern leopard frog.

Vegetation management in riparian areas would also impact special status plants by contributing to maintaining, or improving, red glasswort, Hoary willow, and iodinebush habitat on approximately 113 acres of public land.

Chemical vegetation treatments are used to control undesirable plants, including invasive species/noxious weeds. The types of chemicals used when treating undesirable vegetation are generally species specific, minimizing effects on non-target species. Chemical vegetation treatments would have short-term impacts on special status fauna species, including improved habitat and foraging opportunities, when applied in suitable or potential habitats, as the targeted species would be removed and replaced with more desirable vegetation. Impacts would include improved habitat and foraging opportunities.

Mechanical vegetation treatments include mowing, chaining, chopping, drill seeding, and cutting vegetation. Mechanical treatments generally occur in areas where fuel loads or invasive species need to be reduced prior to prescribed fire application, when fire risk to resources is too great to mange naturally started wildland fires or prescribed fires, or where opportunities exist for biomass utilization or timber harvest. Short-term impacts on special status fauna would result from surface disturbances that cause habitat modification or destruction, loss of cover and forage areas, and the displacement of individuals. Long-term impacts would result from large-scale treatments in special status fauna habitat that change the vegetation classes, such as changing shrub lands to grassland.

Impacts on greater sage-grouse from the vegetation direction would be similar to those discussed above. Sage-grouse may use riparian areas within the sagebrush steppe for late summer brood rearing habitat (Idaho Sage-grouse Advisory Committee 2006). Insects in riparian areas are a key food component for young sage-grouse, so actions designed to improve the riparian conditions would result in greater insect populations and indirectly provide a greater forage base for sage-grouse.

The proliferation of invasive species/noxious weeds has been identified as a threat to greater sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006). Management actions common to all alternatives designed to control/eliminate these species would improve sage-grouse habitat over the long-term by providing higher quality forage or cover. Short term impacts from the control of noxious weeds by mechanical means would potentially result in direct disturbance to greater sage-grouse as well as a temporary loss of habitat immediately

following the treatment. Vegetation treatments would be subject to project level analysis to help reduce or avoid impacts on the sage-grouse.

Weed treatment would be designed to minimize damaging effects on non-target species, especially to special status plants. However, there is potential for weed treatment activities to affect special status plant species and other non-target vegetation. During treatment, individual special status plants may be killed or damaged from over spray of herbicide, by the trampling of weed control personnel, and/or by manual weed removal.

However, over the long term, weed treatments would result in habitat improvement by reducing invasive species/noxious weed competition in special status plant habitat. Weed treatments would occur at a rate of approximately five acres/year in special status plant habitat.

Herbicide use can also affect insect pollinators. In general, adult insect pollinators are not affected by herbicides, but pollinator progeny can be reduced (K. Pierson, personal communication, April 12, 2006). This could result in a short-term reduction of pollination potential of Cooper's hymenoxys, Starveling milkvetch, and silky cryptantha habitat. The long-term effects of herbicide use on pollinators are unknown.

Special status plant habitat would be allowed to recover naturally from disturbances such as wildland fire, wildlife use, and floods. Mechanical drill seeding and other revegetation methods that result in high surface disturbance would not be allowed in special status plant habitat. Broadcast seeding would most likely be the revegetation method of choice in special status plant habitat. Broadcast seeding with a native mix specifically adapted to soil(s) could help prevent invasive species/noxious weed establishment, and this would contribute to the long-term maintenance of Special status plants across the planning area.

Impacts from Fish and Wildlife Direction: Special status fauna would be directly affected in the long term by improvements to native and desired nonnative fish and wildlife habitat and habitat connectivity, as well as by seasonal restrictions and limitations on surface-disturbing activities to protect fish and wildlife. The Riparian, Low-Elevation Shrub, Mid-Elevation Shrub and Mountain Shrub types would be affected by Fish and Wildlife management actions. The special status fauna that inhabit these vegetation types and would be impacted include bald eagle, boreal toad, Northern leopard frog, Colombian sharp-tailed grouse, pygmy rabbit, greater sage-grouse, and gray wolf.

Fish and wildlife management direction would impact greater sage-grouse by improving or protecting habitat from disturbance. The seasonal protections detailed in **Appendix D** would protect grouse habitats during critical periods of the year. While many of the restrictions placed on livestock grazing throughout the action alternatives is directed to protect big game habitat, those restrictions would have an indirect impact on sage-grouse by protecting habitat as well. The protections placed on the Pleasantview Hills/Samaria Mountains (approximately 101,100 acres) and the Soda Springs Hills (approximately 18,700 acres) management areas would enhance sage-grouse habitat by improving or maintaining LHC classes and limiting use in these areas.

As for special status plants, the Pleasantview Hills/Samaria Mountain priority area would indirectly maintain or improve approximately 10 acres of Cooper's hymenoxys habitat. This

would most likely take place through livestock grazing management and invasive species/noxious weed treatment actions to improve big game summer range.

Hoary willow and alderleaf mountain mahogany may be browsed by big game, which could reduce annual productivity. However, considering the high mobility of big game, incidental browsing is not expected to affect long-term survival of these special status plant species. There is little information available on how other wildlife species, including insects, utilize special status plants. Mormon crickets are known to utilize milkvetches and could potentially target Staveling milkvetch. However, this has never been observed.

Impacts from Special Status Species Direction: Actions under this direction that would be common to all alternatives would impact special status plants, but not special status fauna. Implementation of actions that would contribute to the continued presence and conservation of special status plants would help ensure they are not listed under the ESA.

Individual plants could be collected and/or damaged from trampling during inventory and monitoring surveys. Trampling can also increase the potential for invasive species/noxious weed infestations. These effects are expected to be short-term and occur on less than 1 acre/year. Surveys provide highly useful information on range, threats, habitat condition, and population trends of special status plants. Over the long-term this information would be used during site-specific planning and would contribute towards maintaining approximately 313 acres of special status plant habitat, especially Starveling milkvetch and silky cryptantha.

Insect pesticides may result in a temporary decrease in insect biodiversity within treatment blocks. Loss of insect pollinators can reduce the reproductive potential of Cooper's hymenoxys, silky cryptantha, and Starveling milkvetch. However, field studies have shown that affected insect populations can recover rapidly and generally suffer no long-term effects (Animal and Plant Health Inspection Service 2005). Pesticide use would reduce feeding damage of grasshoppers and Mormon crickets on vegetation. With the exception of iodinebush and red glasswort, grasshoppers and Mormon crickets could feed on all special status plant species. The intensity of feeding on special status plants is unknown. Iodinebush and red glasswort accumulate a high salt concentration and would likely not be targeted by grasshoppers and Mormon crickets.

Impacts from Water Resources Direction: Actions under this direction would impact special status fauna, but not special status plants. Water Resources management would require that disturbed soil be reclaimed, maintain or improve riparian areas, and protect hydrologic functions. These activities would directly affect special status fauna species that depend upon riparian or open water areas, including the bald eagle, boreal toad, and northern leopard frog.

As greater sage-grouse are known to utilize riparian areas within the sagebrush steppe as part of their brood-rearing habitat, actions common to all alternatives to improve riparian habitats would impact greater sage-grouse in those areas by potentially improving habitat. Any actions that take place within riparian areas would be subject to management direction to avoid or reduce impacts to greater sage-grouse using those riparian areas.

Impacts from Wildland Fire Management Direction: Impacts on special status fauna from fire suppression would increase the potential for catastrophic fires that are an imminent threat to

special status fauna. Catastrophic fires tend to burn hotter and often cover a larger area than historical norms. Therefore, cover and foraging areas take longer to regenerate. In the Low-Elevation Shrub, Mid-Elevation Shrub and Mountain Shrub types, suppression of wildland fire has led to the loss of greater sage-grouse habitat due to juniper encroachment. In the Aspen/Aspen Conifer Mix/Dry Conifer vegetation types, fire suppression has resulted in decadent aspen stands and monotypic conifer forests. Aspen forests support more biodiversity than monotypic conifer stands and are very important to special status fauna species such as Colombian sharp-tailed grouse, boreal toads, and northern goshawks.

Fire suppression requires surface-disturbing activities (e.g., cutting, digging fire lines, and back-burning) that would have short term impacts on special status fauna, including habitat destruction, displacement of individuals, and increased competition for cover and forage on adjacent habitat and as well as mortality to those species that are less mobile.

Wildland fire has been identified as the greatest threat to greater sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006). As discussed above, fire suppression has resulted in the loss of greater sage-grouse habitat through the alteration of sagebrush habitats. Historical fire-return intervals vary depending on the species and subspecies of sagebrush as well as site specific factors such as elevation and annual precipitation. Through years of successful fire suppression activities, fuel loads have been altered that have the potential to result in larger wildland fires. Actual suppression activities would affect greater sage-grouse in the same manner as discussed above including short-term disturbance to habitat from surface-disturbing activities. Proactive restoration, rehabilitation and fire suppression tactics protect sagebrush habitat by reducing the size of wildland fires, maintaining productive sage-grouse habitat, and maintaining sagebrush cover (Idaho Sage-grouse Advisory Committee 2006).

As defined in BLM Manual 6840, suppression and treatment would require inventorying and evaluating project-specific effects. All alternatives include management actions to restrict wildland fire suppression, as well as fire and nonfire vegetation treatments, in order to protect special status fauna and their habitats.

Impacts on special status plants due to fire suppression could affect approximately 198 acres of special status plant habitat (e.g., alderleaf mountain mahogany, Cooper's hymenoxys, silky cryptantha, and Starveling milkvetch). Suppression techniques that involve surface disturbance (e.g., dozer and hand lines) could result in long-term loss of special status plant habitat. However, the potential of direct loss from suppression activities would be low considering that the acreage of these species combined is approximately 198 acres, or less than 1% of the planning area. Suppression of wildland fire in the Downey Watershed ACEC would contribute to maintaining alderleaf mountain mahogany, which could be lost during a wildland fire. In general, fire suppression activities would normally not be conducted in riparian areas and the special status plants (e.g., Hoary willow, red glasswort and iodinebush) that occupy riparian areas would not be affected.

Wildland fire would have short- and long-term impacts on special status fauna species. Short-term impacts would include the temporary loss of forage and cover and direct mortality to those individuals not capable of moving out of wildland fire's path. Wildland fire, at the appropriate frequency, reduces fuel loads by removing dead material and regenerating fire-tolerant species within the native plant communities. In the long term, wildland fire would improve the overall

ecosystem health and reduce the risk of catastrophic fires. These effects would impact the special status fauna that occupy the affected ecosystems by improving habitat conditions.

A common impact on greater sage-grouse from fire is the reduction or modification of habitat. Frequent or large-scale wildland fires have the potential to remove substantial portions of sage-grouse habitat rendering large areas unsuitable or marginal for greater sage-grouse (Idaho Sage-grouse-Advisory Committee 2006). Fire would also potentially fragment existing greater sage-grouse habitat by reducing sagebrush cover or by impairing the progress of restoration efforts. Short-term impacts to greater sage-grouse would be similar. When used on the appropriate scale and time-frame, fire would improve sagebrush areas and grouse habitat, by reducing invasive species/noxious weeds, stimulating regeneration of sagebrush, and temporarily increasing the relative abundance of insects available as forage for young grouse.

The impacts on special status fauna from prescribed fire are similar to those described for wildland fire except that the size, location, and timing of prescribed fires would be managed according to a burn plan and defined burn prescription. WFU is a pre-planned vegetation treatment that would have the same impacts as wildland fire. However, unlike prescribed fire, WFU takes advantage of naturally ignited wildland fire. Prescribed fire and WFU would be subject to project-specific NEPA analysis to identify areas where application of these treatments would be suitable and impacts on special status fauna would be minimized where possible.

If used appropriately, prescribed fire can have a long-term impact on greater sage-grouse by improving habitat quantity and quality. Prescribed fire would be subject to NEPA analysis to ensure that avoidable impacts to greater sage-grouse habitat would be reduced and applicable mitigation measures applied.

Regarding special status plants, wildland fire could affect approximately 233 acres of habitat (e.g., alderleaf mountain mahogany, Cooper's hymenoxys, Hoary willow, silky cryptantha, and Starveling milkvetch). The expected effects of fire on the special status plants of the planning area are listed in **Table 4.2.7-4**. There is very limited research on how special status plants reacts to fire and expected effects on special status plants is based primarily on BLM surveys and observations. Habitat descriptions of special status plant species are found in Chapter 3. The habitat of red glasswort and iodinebush is not expected to burn and would not be affected by wildland fire.

Table 4.2.7-4. Expected Wildland Fire Effects on Special Status Plant Species Within the Planning Area

Special Status Plant[1]	Wildland Fire Effect
Alderleaf mountain mahogany	Alderleaf mountain mahogany is known to resprout from root crowns after an early season wildland fire (Francis 2004). However, the single alderleaf mountain mahogany plant in the Yago Creek drainage could be killed by a late season and/or "hot" fire. Regeneration is not expected to occur, unless alderleaf mountain mahogany seed survives the burn and burned soils are not colonized by other species (e.g., cheatgrass).
Cooper's hymenoxys	The habitat of Cooper's hymenoxys occurs on sparsely vegetated windswept ridges and fire intensity would be low. Although, Cooper's hymenoxys response to fire is unknown, at least some individuals are expected to resprout

Table 4.2.7-4. Expected Wildland Fire Effects on Special Status Plant Species Within the Planning Area

Special Status Plant[1]	Wildland Fire Effect
	after fire from its large and somewhat branching taproot. A majority of the seed bank is also expected to survive in a low intensity fire and regeneration from seed is expected to occur. Invasive species/noxious weeds (e.g., cheatgrass, bilobed speedwell, and bulbous bluegrass) are expected to increase in the habitat after fire and compete directly with Cooper's hymenoxys by reducing the establishment potential and site productivity.
Hoary willow	Hoary willow's response to fire has not been documented. However, considering Hoary willow grows on soils with a high water table it is expected to resprout from rootstock after fire. Invasive species/noxious weeds (e.g., Canada thistle, perennial sowthistle) may also increase after fire, which could reduce establishment potential and site productivity.
Red glasswort	Fire is not expected to occur in red glasswort habitat (riparian). The habitat of this species supports very low fuel loads and is very moist.
Iodinebush	Fire is not expected to occur in iodinebush habitat (riparian). The habitat of this species supports very low fuel loads and is very moist.
Silky cryptantha, Starveling milkvetch	The habitat of *silky cryptantha* is normally sparsely vegetated and fire intensity would be low. Being a biennial to short-live perennial, silky cryptantha has limited root reserves and individual plants could die from wildland fire. Regeneration of silky cryptantha after wildland fire would take place almost exclusively by seed. Invasive species/noxious weeds (e.g., Dyer's woad, cheatgrass, dandelion) could increase in the habitat after fire and compete directly by reducing establishment potential and site productivity. *Starveling milkvetch* is an associated species of silky cryptantha and both species occupy the same habitat. Considering Starveling milkvetch has a long stout taproot, it is expected to resprout after fire. Although it is unknown how the seed bank of Starveling milkvetch is affected by wildland fire some regeneration from the seed bank is expected. Invasive species/noxious weeds (e.g., Dyer's woad, cheatgrass, dandelion) could increase in the habitat after fire and compete directly with starveling milkvetch by reducing establishment potential and site productivity.

[1]Special status plant species habitat is described in Section 3.2.7.2, Chapter 3.

Prevention of wildland fire can also affect special status plants. In general, unburned plant communities are more resistant to weed invasion, and wildland fire suppression activities can result in weed invasion.

Resting special status plant habitat from livestock grazing after wildland fire would allow individuals and associated vegetation to regenerate and grow. This action would help ensure the viability and productivity of special status plant habitat.

Impacts from Forestry Direction: Actions under this direction would impact special status fauna, but not special status plants. Forestry management activities include timber harvest and associated temporary and permanent road construction. The direct impacts would include habitat

loss, displacement, and competition for habitat and forage in other locations. These activities would occur in the Aspen/Aspen Conifer Mix/Dry Conifer and Wet/Cold Conifer types and would directly impact the special status fauna species that occupy those vegetation types. Water quality impacts from surface disturbance (erosion, sedimentation, temperature changes) would directly impact Special Status aquatic resources. Special status fauna may be temporarily displaced by increased noise and air pollution levels, as well as by human activity during harvesting and log hauling. Unauthorized public use of temporary and permanent logging roads could have long-term impacts on special status fauna.

No impacts would occur to greater sage-grouse from the forestry direction under any alternatives since forestry activities would not occur in greater sage-grouse habitat.

Impacts from Lands and Realty Direction: Actions under this direction that are common across all alternatives would affect special status fauna, but not special status plants. Land tenure adjustments are addressed in all alternatives. Disposal of public lands could affect special status fauna by decreasing the number of acres of public land habitat. Privately owned habitats generally have no requirements to manage for the benefit of special status fauna. Land tenure adjustments would require inventories of special status fauna and their habitats prior to project approval and would require measures to exclude or minimize known or potential habitat for special status fauna from disposal actions. These measures would avoid or reduce impacts on special status fauna.

Impacts on greater sage-grouse from lands and realty direction would be similar to those listed above. However, the implementation of several measures would mitigate any potential impacts from the lands and realty direction. Surveying areas prior to land disposal and limiting the amount of grouse habitat to be disposed of would limit the short-term and long-term impacts on greater sage-grouse habitat fragmentation. In addition, all ROW applications would consider their potential effects on greater sage-grouse and their habitat. The BLM would also work with land disposal applicants and partners to reduce impacts on sage-grouse and habitat.

Impacts from Livestock Grazing Direction: Actions under this direction that would be common across all alternatives would affect special status fauna, but not special status plants. Livestock grazing would have direct impacts on special status fauna in the Low-Elevation Shrub, Mid-Elevation Shrub and Riparian types as well as in waterways. Impacts could include vegetation removal and trampling, soil compaction, displacement of individual special status species during critical times of the year, reduction of habitat complexity, elevated stream temperatures, and increase sedimentation. The intensity of impacts would depend on the timing and duration of livestock grazing. Livestock grazing on public land in Idaho is subject to NEPA analysis and the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a), which would help avoid or reduce impacts on special status fauna by livestock grazing.

Livestock grazing would potentially impact greater sage-grouse and their habitat in a number of ways in addition to those listed above. Improper livestock grazing practices reduce cover for grouse, disrupt lek activity, and result in fewer forbs being available for grouse. In addition, the development and placement of mineral supplements, fences, and other structures such as water structures would also impact greater sage-grouse by providing barriers to movements.

Approximately 185,900 acres (96%) of key habitat, 235,700 acres (94%) of breeding habitat, and 70,900 acres (96%) of winter habitat for the greater sage-grouse overlaps grazing allotments within the PFO. The number of AUMs that are allowed on each allotment varies greatly but most allow for less than 100 AUMs.

Proper livestock grazing would be compatible with sage grouse habitat. Proper livestock grazing practices would maintain, if not improve, habitat by ensuring that adequate vegetative resources, grasses, forbs and shrubs remain for the nesting, foraging, and cover requirements of sage-grouse. Improved grazing management practices including control of timing, intensity, duration and frequency of grazing use, as well as the sequence of these treatments over time, have improved vegetative conditions (Idaho Sage-grouse Advisory Committee 2006). **Appendix C** and the conservation measures detailed in the Conservation Plan for Greater Sage-grouse in Idaho would be used to support and guide NEPA analyses and decisions affecting sage-grouse or sage-grouse habitat on BLM-administered public lands, thus mitigating impacts of grazing on sage-grouse habitat. These measures include using livestock grazing practices to improve or maintain special status species habitat, using appropriate practices to maintain or promote the condition necessary to sustain native plant communities, and designing fences (e.g. using reflective tags or other methods) and other livestock structures to reduce impacts on greater sage-grouse.

Impacts from Minerals and Energy Direction: Minerals and energy development causes surface disturbance resulting from such actions as open-pit mining and the building of well pads, roads, and other associated infrastructure. Development actions would fragment continuous habitat, change plant community structure and diversity, and alter vegetation landscapes. These effects would have short-term and long-term impacts on the special status fauna that occupy those areas by modifying habitats and displacing individuals. Long-term impacts would be associated with the operation of mines and the use of haul roads. Contaminants from phosphate mining activities (e.g., Selenium, Zinc, and Cadmium) could be absorbed into water sources and vegetation, having both direct and indirect long-term effects on special status species relying on these water and food sources.

The impacts on greater sage-grouse from mineral and energy direction would be similar to those discussed above. Any mineral or energy development has the potential to result in habitat loss or fragmentation if it occurs in suitable habitat. Mineral and energy developments also have the potential to introduce and spread invasive species/noxious weeds. To protect greater sage-grouse habitats, seasonal restrictions would be implemented during portions of the year to protect leks, nesting and brooding habitats, and winter range (**Appendix D**). **Appendix C** details the guidelines, techniques, and practices that would be utilized for energy and mineral developments to mitigate the potential impacts on greater sage-grouse or their habitat.

Three types of habitat for the greater sage-grouse are mapped within the PFO area: key, breeding, and winter habitat. The potential for oil and gas to occur within the PFO area is characterized as Low, Medium, or High. When the oil and gas potential is overlaid with the 193,100 acres of key habitat for sage-grouse, approximately 27,100 acres (14%) of key habitat occurs in areas of High potential, 19,300 acres (10%) of key habitat occurs in areas of Medium potential, and 146,700 acres (76%) of key habitat occurs in areas of Low potential. When the oil and gas potential is overlaid with the 250,200 acres of breeding habitat for the sage-grouse, approximately 54,800 acres (22%) of breeding habitat occurs in areas of High potential, 46,600

acres (19%) of breeding habitat occurs in areas of Medium potential, and 148,800 acres (59%) of breeding habitat occurs in areas of Low potential. When the oil and gas potential is overlaid with the 73,800 acres of winter habitat for greater sage-grouse, approximately 16,400 acres (22%) of winter habitat occurs in areas of High potential, 8,600 acres (12%) of winter habitat occurs in areas of Medium potential, and 48,800 acres (66%) of winter habitat occurs in areas of Low potential.

An NSO stipulation for the Oregon Trail, Fort Hall Irrigation Project, and Downey Watershed ACEC would provide protection of approximately 52 acres of special status plant habitat (Hoary willow, alderleaf mountain mahogany Starveling milkvetch, and silky cryptantha) from surface disturbances.

Due to the limited occurrence of locatable mineral deposits (Figure 3-12), there is Low potential for development in special status plant habitat. However, under this alternative, protections would be implemented to protect special status plants. Development of Locatable Minerals can result in direct loss of individuals and habitat. Locatable mineral closures for the Downey Watershed and Fort Hall Irrigation Project Withdrawals would provide long-term protection of approximately 33 acres of special status plant habitat (e.g., Hoary willow and alderleaf mountain mahogany) from surface disturbance. Avoidance and/or site-specific mitigation would apply to all Locatable Minerals developments to prevent or reduce loss of individual special status plants and/or degradation of habitat.

Impacts from the RFDS of Fluid Minerals Management Direction: Impacts would be similar to those from other minerals and energy management actions. Surface-disturbing activities would have direct impacts on special status fauna including habitat modification and displacement. Impacts from the construction of facilities, pipelines, and roads include soil erosion and compaction and the removal of vegetative cover by trampling, balding, and cross-country travel. Impacts from construction activities would be short term and localized, and the impacts from the operation of these facilities would be long term.

The projected level of RFDS for Fluid Minerals is 185 acres for oil and gas development and 129 acres for geothermal development. Oil and gas development would be located in the Bear Lake area and surface disturbance would likely occur primarily in the Mid-Elevation Shrub. The special status fauna species that would be impacted by these actions include Colombian sharp-tailed grouse, greater sage-grouse, and pygmy rabbit.

With regard to special status plants, the potential for oil and gas and geothermal resources in special status plant habitat is identified in **Table 4.2.7-5**. Approximately 205 acres (66%) of 311 acres special status plant habitat occurs in an area with High oil and gas potential. Approximately 77 acres or 25% of special status plant habitat occurs in an area with Medium oil and gas potential and approximately 29 acres of Cooper's hymenoxys occurs in an area with Low oil and gas potential. No Cooper's hymenoxys habitat is known to occur in areas with high or medium oil and gas potential.

Table 4.2.7-5. Approximate Acres of Special Status Plant Habitat With Oil and Gas and Geothermal Resource Potential on Public Lands Within the Planning Area

Special Status Plant Species	Oil and Gas Potential			Geothermal Potential		
	High	Medium	Low	High	Medium	Low
Red glasswort/ iodinebush	0.0	76	0.0	41	35	0.0
Hoary willow	35	0.0	0.0	35	0.0	0.0
Alderleaf mountain mahogany	0.0	1	0.0	0.0	0.0	1
Silky cryptantha/ Starveling milkvetch	168	0.0	0.0	0.0	0.0	168
Cooper's hymenoxys	0.0	0.0	29	0.0	0.0	29
Red glasswort	2	0.0	0.0	0.0	0.0	2

Approximately 76 acres of special status plant habitat occurs in an area with High geothermal resource potential. Approximately 35 acres of special status plant habitat occurs in area with Medium potential, and approximately 200 acres occurs in area with Low geothermal potential.

4.2.7.4 Alternative A

Impacts from Special Status Species Direction: Management actions would impact special status fauna by maintaining or improving existing habitat. The species impacted would include bald eagles, gray wolves, Utah valvata snails, pygmy rabbits, boreal toads, northern leopard frogs, American white pelicans, greater sage-grouse, Colombian sharp-tailed grouse, Yellowstone and Bonneville cutthroat trout, Bear Lake endemic fish, and Special Status bat species. Survey measures would continue to inventory for pygmy rabbits, boreal toads, and northern leopard frogs.

The management direction for the greater sage-grouse under Alternative A would result in short-term and long-term impacts. Habitat for the greater sage-grouse would be maintained or enhanced, human activities that would potentially disrupt behavior would be mitigated, and undesirable habitat modifications from authorized activities or natural disturbances would be minimized. In addition to the specific measures directed at the greater sage-grouse, this species would indirectly benefit from the protections afforded to other species, particularly if the range of those species overlaps with the sage-grouse.

Surface disturbing activities have the potential to result in direct loss and degradation of special status plant habitat. Avoiding actions that cause concentrated use or surface disturbance in habitat would contribute to maintaining 313 acres of special status plant habitat.

Impacts from Vegetation Direction: Forage production would be maintained or increased for both livestock and wildlife. Managing rangelands for forage production (drilling, spraying,

fertilizing, prescribed fire, and chaining) could impact special status fauna, as these activities tend to focus management towards the production of monotypic stands of vegetation rather than a diversity of species.

Alternative A allows limited treatments in crested wheatgrass seedings, but nowhere else, in the shrub steppe types. Most vegetation treatments that would occur in these communities would primarily be in response to wildland fire, and would use chemical, mechanical and biological treatments. Compared to the other alternatives, Alternative A would have the lowest potential for providing long term restoration of the sagebrush steppe with management actions focusing on forage production and thus in turn, not providing essential habitat components (e.g., escape cover, canopy cover and forage) for representative special status species. Since this alternative would have the lowest potential to improve or restore the sagebrush steppe, it would likely result in less sage-grouse habitat being maintained or improved over time compared to other alternatives.

Only approximately 3,400 acres of vegetation treatment would be proposed in Alternative A in the Aspen/Aspen Conifer Mix/Dry Conifer types. This would be the least amount of acres proposed for treatment in any of the alternatives. In all the forest types, fire suppression and limited treatments would increase the risk of even age stand(s) that would become susceptible to catastrophic fire, insects, or disease (all of these events tend to result in the loss of entire stands of timber and the associated habitat they provide). This would, in turn, impact the special status fauna that rely on these vegetation types.

As mentioned previously, the potential of catastrophic wildland fire is a threat to greater sage-grouse. Under Alternative A, the management direction for vegetation would result in the highest potential for wildland fire, thereby increasing the potential for a long-term impact on grouse compared to the other alternatives.

The selected BpS classes used to evaluate Special Status Fauna impacts for each vegetation type are identified in **Table 4.2.7-6**. The same BpS classes were used for each vegetation type by alternative.

Table 4.2.7-6. Description of Selected BpS Class for Special Status Fauna Impact Assessment by Vegetation Type

Vegetation Type	Selected BpS Class[1]	Key Component Description for Selected BpS Classes
Low-Elevation Shrub	C	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15-25% in nesting habitat. In Low-Elevation Shrub, class C has shrub canopy cover from 16-30%.
Mid-Elevation Shrub	B	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15-25% in nesting habitat. In Mid-Elevation shrub, class B has shrub canopy cover from 6-25%.
Mountain Shrub	B	Greater sage-grouse nesting habitat was used to choose BpS classes for impact analysis. The desired shrub canopy cover ranges from 15-25% in nesting

Table 4.2.7-6. Description of Selected BpS Class for Special Status Fauna Impact Assessment by Vegetation Type

Vegetation Type	Selected BpS Class[1]	Key Component Description for Selected BpS Classes
		habitat. In Mountain Shrub, class B is the only class that has shrubs in the upper layer of vegetation.
Juniper	E	Class E represents areas where juniper is not encroaching in to the Mid-Elevation Shrub ecological sites.
Aspen/Aspen Conifer Mix/ Dry Conifer	B	Aspen saplings over 12 feet tall dominate this class. These stands have recent aspen reproduction and provide both mule deer fawning habitat and ruffed grouse nesting habitat.
Wet/Cold Conifer	D	Class D provides the structure of a mature forest.

[1]See **Appendix J** for BpS Class descriptions.

The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage increases from 0 to approximately 9,400 acres after 10 years, and approximately 37,500 acres after 30 years. At year 30, this would be 98% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding/rearing habitat. The increase in this vegetation type would result in increased habitat for the greater sage-grouse in the long-term.

Approximately 42,100 acres of crested wheatgrass seedings are contained within this vegetation type. The seedings were assigned an uncharacteristic class at the beginning of the analysis period and remained in that class.

For the Mid-Elevation Shrub type, the BpS Class B was evaluated which provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse in the desired range of 6-25% shrub cover. For purposes of analysis, Class B started with approximately 40,500 acres and increased to approximately 53,000 acres after 10 years due to succession. After 30 years, approximately 29,600 acres would remain in Class B. This increase of 12,500 acres and then decrease of 23,400 acres over the analyzed 30 year period is due to succession with no treatments taking place during that time. Without some treatment, the entire shrub type would move to later successional stages, reducing the number of acres at 30 years in Class B that provide quality nesting habitat.

In the Mountain Shrub type, BpS class B is once again used to evaluate Special Status fauna habitat. Class B provides the required shrub cover for special status fauna use. Class B would contain approximately 187,000 acres throughout the analysis period.

For the Aspen/Aspen Conifer Mix/Dry Conifer types, the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and is used by mule deer as fawning habitat. Class B would increase from approximately 500 acres to 800 acres by year 10 and approximately 1900 acres by year 30. At year 30, this would be 5% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved nesting/brooding rearing habitat.

Table 4.2.7-7 presents a summary of the vegetation treatment results by alternative over the short term (10 years) and long term (30 years). The table identifies a change (increase or decrease) in the desired BpS class acreage of a particular vegetation type and assumes an increase in BpS class acreage would impact special status fauna.

Table 4.2.7-7. Short Term (10 Years) and Long Term (30 Years) Change in Acreage Resulting from Vegetation Treatments on Identified (Desired) BpS Classes[1] of Representative Fish and Wildlife Species by Alternative

		Alternative							
		A		B		C		D	
Vegetation Type[2]	BpS Class[3]	10 Years	30 Years	10 Years	30 Years	10 Years	30 Years	10 Years	30 Years
Low-Elevation Shrub	C	9,400	37,500	- 7,200	- 27,800	- 7,200	- 36,400	NC 9,400	NC 37,500
Mid-Elevation Shrub	B	53,000	29,600	+ 78,400	+ 41,500	+ 69,600	+ 37,400	+ 99,800	+ 51,600
Mountain Shrub	B	187,000	187,000	NC 186,800	NC 187,000	NC 186,800	NC 187,000	NC 186,900	NC 187,000
Natural Juniper	E	14,400	14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400	NC 14,400
Aspen/Aspen Conifer Mix/ Dry Conifer	B	800	1,900	NC 800	+ 6900	NC 800	+ 29,300	NC 800	- 300
Wet/Cold Conifer	D	700	700	NC 700	NC 700	NC 700	NC 700	NC 700	NC 700
Riparian	NA	NA	NA	+	+	+	+	+	+

[1] A "+" indicates and increase in BpS class acreage of a vegetation type. A "–" indicates a decrease in the BpS class acreage. NC indicates no change in acreage compared to current conditions.
[2] Representative fisheries and wildlife species for these vegetation types are found in **Table 4.2.7-2**
[3] See **Appendix J** for BpS Class descriptions.

Impacts from Wildland Fire Management Direction: Alternative A would identify the fewest number of acres as suitable for vegetation treatments for wildland fire management, approximately 3,400 acres that would all be in the Aspen/Aspen Conifer Mix/Dry Conifer types. It is the only alternative that would not allow WFU. Overall, Alternative A would have the least potential for short term impacts from surface-disturbing activities but would pose the biggest risk for long-term impacts from catastrophic wildland fire. All special status fauna species are at risk from catastrophic wildland fire.

As mentioned above, Alternative A would result in short-term impacts on the greater sage-grouse by suppressing all wildland fires and not allowing WFUs. By suppressing fire, less habitat would potentially be lost and less disturbance to sage-grouse would likely occur. However, as fuels build up over time, the risk of a catastrophic wildland fire in the future increases, along with a corresponding risk of a large scale loss of greater sage-grouse habitat.

Currently, there is no direction for prescribed fire in special status plant habitat. Therefore there would be no impacts in special status plant habitat in Alternative A. WFU would not be

appropriate on approximately 313 acres of special status plant habitat. Therefore there would be no impacts from WFU.

Impacts from Lands and Realty Direction: Several types of actions could affect special status fauna. Alternative A would provide for retaining approximately 581,600 acres in Federal ownership. Approximately 32,200 acres (5% of the planning area) would be available for disposal through sale or exchange. Approximately 561,700 acres would be open to ROW, approximately 20,200 acres would be avoidance areas, and approximately 32,000 acres would be closed to LUA development. If possible, public access would be acquired to allow use of approximately 37,300 acres.

If approximately 32,300 acres of land would leave public ownership, that many acres of special status fauna habitat could be lost. Development could lead to major alterations in habitat (e.g., gravel pits, mining, and cropland) or there could be little change in habitat if management is similar (e.g., livestock grazing, dispersed recreation). Approximately 5,600 acres of Colombian sharp-tailed grouse winter habitat and approximately 900 acres of nesting habitat would leave federal ownership. Approximately 1,100 acres of key greater sage-grouse habitat would leave federal ownership. This would result in a long-term impact on greater sage-grouse if the land disposed of has less protective measures than under BLM management. If the land disposed of is managed with more protections for the greater sage-grouse than under current management, habitat for the grouse would be improved.

Approximately 561,700 acres would be open to LUA development, 20,200 acres would be in avoidance zones, and 32,000 acres would be closed to LUA development. In the last 3 years, the number of ROWs issued has varied from 7-10 per year, and the total acres involved ranged from 31-213 per year. If a large energy-related LUA was issued in the planning area, the acres affected could be much larger. The types of impacts expected from LUAs would be fragmentation of habitats caused by new roads, increased chance of invasive plant introduction, which would decrease habitat quality, and disturbance to riparian habitat caused by potential stream crossings.

Development of infrastructure has been determined to be a threat to greater sage-grouse in Idaho. The development of ROWs as they relate to greater sage-grouse can be divided into two groups, linear (roads, pipelines, utility corridors, etc) and non-linear (communication towers, wind energy developments, etc). Development of infrastructure under Alternative A would continue to potentially disturb sage-grouse. To mitigate for these impacts, the BLM would implement a number of protective measures which include, but are not limited to, seasonal restrictions around grouse habitat (leks, nesting and brooding habitat, and winter habitat), relocating proposed developments when possible to avoid grouse, and restoring disturbed habitats as soon as possible to reduce the disturbance footprint. A full list of conservation measures, other methods to reduce impacts, and seasonal restrictions are found under **Appendix C** and **Appendix D**.

Public access could result in the harassment of special status fauna during sensitive periods of the year, such as nesting season for birds, thus affecting reproduction and the survival of young.

Special status plants may be affected by ROW development and other LUAs. Approximately 313 acres of special status plant habitat would be retained in federal ownership. This would provide long term maintenance and conservation of special status plant habitat across the planning area. While LUA development on public lands has occurred only on approximately 164 acres/year,

539,600 acres of public land is open for LUA development. Excluding the alderleaf mountain mahogany population in the Downey Watershed ACEC, approximately 312 acres of special status plant habitat would be open to LUA development. ROWs that involve surface disturbance would normally be routed away from special status plant habitat. Avoidance of occupied habitat would impact the maintenance of special status plants on public lands across the planning area.

Impacts from Livestock Grazing Direction: Approximately 556,300 acres (91% of the planning area) would be available for livestock grazing. Livestock grazing adjustments would be required to address impacts on special status fauna and would be accomplished through applying the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a). The acquired lands (approximately 3,600 acres) in the Soda Springs Hills Management Area would not be available for livestock grazing, which would maintain nesting habitat for Columbian sharp-tailed grouse.

Under Alternative A, grazing would be available in most of the greater sage-grouse habitat in the PFO area. As mentioned under the Impacts Common to all Alternatives section, impacts on sage-grouse would occur through a number of pathways if improper grazing management practices are used. The BLM is committed to using the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) to reduce the negative impacts on sage-grouse. Using these management guidelines would result in the judicious application of grazing in sage-grouse habitat so the area would experience fewer impacts from grazing, and progress would be made towards meeting rangeland health standards, resulting in improved habitat for grouse.

Approximately 108 acres of special status plant habitat (e.g., Hoary willow, iodinebush, and red glasswort) would not be available to livestock grazing, and approximately 205 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) would be available. **Table 4.2.7-8** describes the expected effects of livestock grazing on special status plants. In general, BLM Botanists base the effects on special status plants on observations, surveys, monitoring, and research.

Table 4.2.7-8. Expected Livestock Grazing Effects On Special Status Flora Plant Species Within the Pocatello Field Office Area

Special Status Flora Species	Grazing Effect[1]
Alderleaf mountain mahogany	Generally, livestock (cattle) do not utilize alderleaf mountain mahogany; and direct effects are not expected. Livestock grazing in habitat may introduce invasive species/noxious weeds and reduce the potential for natural seed regeneration and habitat productivity.
Cooper's hymenoxys	Livestock are known to incidentally browse Cooper's hymenoxys, which can reduce reproduction potential and damage individual plants. Trampling can also result in damage or loss of individual plants. Livestock use in habitat may also introduce invasive species/noxious weeds and reduce the potential of natural seed regeneration and habitat productivity.
Hoary willow	Livestock are known to utilize willows and this can result in damage and loss of individual shrubs, especially when use occurs during mid-summer through fall. Trampling in habitat may alter the hydrological regime and introduce invasive species/noxious weeds. Invasive species/noxious weeds can reduce the potential of natural seed regeneration and habitat productivity.

Table 4.2.7-8. Expected Livestock Grazing Effects On Special Status Flora Plant Species Within the Pocatello Field Office Area

Special Status Flora Species	Grazing Effect[1]
Red glasswort	Red glasswort is a succulent of seasonally wet, saline or alkaline soils. Livestock use of this species is unknown. However, the palatability of red glasswort is expected to be low because it accumulates a high salt concentration. Trampling in habitat may alter the natural hydrological regime and introduce invasive species/noxious weeds. This can result in reduced natural seed regeneration and habitat productivity.
Iodinebush	Iodinebush is a succulent of salt playas and mudflats. Livestock use of this species is unknown. However, the palatability of iodinebush is expected to be low because it accumulates a high salt concentration. Trampling in habitat may alter the natural hydrological regime and introduce invasive species/noxious weeds. This can result in reduced seed regeneration and habitat productivity.
Silky cryptantha and Starveling milkvetch	Generally, livestock do not utilize silky cryptantha or Starveling milkvetch and direct effects from use is not expected. Trampling from livestock can result in damage and loss of individual plants and introduce invasive species/noxious weeds. This can result in reduced seed regeneration and habitat productivity.

[1]The effects described to special status plant species are based on observations and surveys by BLM botanists.

Implementation of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would maintain or improve approximately 205 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) on public lands. On average, Idaho Standards for Rangeland Health would be conducted on approximately 57,000 acres per year across the planning area. Implementation of management actions to improve special status plant habitat can include adjustments in livestock stocking rates, livestock grazing management plan modifications, season of use adjustments, stubble height requirements, herding, fencing, education, and range improvements. These management actions would reduce surface disturbance and invasive species/noxious weeds spread and would result in improvements to, and the maintenance of, special status plant habitat.

Impacts from Minerals and Energy Direction:

Fluid Minerals

Alternative A would allow 602,600 acres in the planning area to be leased for Fluid Minerals development. Approximately 11,200 acres would be closed to leasing (Petticoat Peak and Worm Creek WSAs). Approximately 314,000 acres (51%) would be leased with an NSO stipulation, and seasonal restrictions would be applied to approximately 227,400 acres (37%), which would protect special status species habitat in ACEC and RNAs, as well as in riparian and perennial streams. The NSO and seasonal restriction areas do not overlap. Seasonal restrictions would decrease disturbance to sage-grouse from exploration during nesting season (**Tables 4.3.4-2** and **4.3.4-3**). With seasonal restrictions, impacts on habitat from exploration could still happen during a different period of the year.

The RFDS for Fluid Minerals is the same for all alternatives. The BLM expects to issue approximately 50 leases for oil and gas, to allow implementation of five exploration projects, and

to oversee development of one five-well field. The most likely place for exploration and development is the Bear Lake Plateau in Shrub Steppe habitat. Greater sage-grouse habitat occurs throughout the Bear Lake Plateau and would therefore be disturbed by fluid mineral development in areas where NSO or timing limitations would not be implemented. Under the oil and gas exploration phase, four miles of road per well and a well pad would be constructed. Each exploration project would disturb approximately 25 acres, 21 acres per road, and 4 acres for each well pad. Development of the field would disturb an additional approximately 60 acres. Total disturbance to habitat would be approximately 185 acres.

Approximately 85 acres would be disturbed long term from oil and gas field development. The remaining approximately 100 acres of disturbance would be short term because disturbed land would be reclaimed. It is unlikely that all of the approximately 100 acres would be disturbed at the same time because exploration would take place over the plan lifetime.

Based upon the RFDS for Fluid Minerals, twenty miles of new roads would lead to increased fragmentation of Shrub Steppe habitat. Sixteen miles of road would be rehabilitated, resulting in a short term impact of fragmenting sage-grouse habitat. Four miles of road would not be rehabilitated resulting in a long term fragmentation of sage-grouse habitat. Many species of special status fauna require large patches of Shrub Steppe habitat to prosper. New roads would increase public access and potentially increase harassment of sage-grouse during critical periods, such as nesting. Additional roads would also provide more opportunity to introduce invasive plants, which would reduce habitat quality.

Oil and gas field development would disturb approximately 85 acres of habitat in the long term. This includes five wells, four miles of road, and collection facilities. The major difference between field development and exploration is the length of the habitat disturbance (long term for field development) and the lack of seasonal restrictions. The field development would cause permanent changes to habitat and yearlong disturbance of wildlife.

The BLM expects to issue approximately ten geothermal leases, to allow five exploration projects, and to oversee the development of one geothermal generation facility.

Under the geothermal exploration phase, four miles of road per well and a well pad would be constructed. Each exploration project would disturb approximately 17.5 acres, 14.5 acres per road and 3 acres for each well pad. Development of the field would disturb an additional approximately 42 acres. Total disturbance to habitat would be approximately 129 acres.

Long-term disturbance by geothermal field development would be on approximately 60 acres. The remaining 69 acres of disturbance would be short term because land disturbed by exploration would be reclaimed. It is unlikely that all 69 acres would be disturbed at the same time because exploration would take place over the plan lifetime.

Many species of special status fauna require intact habitat to prosper. Based upon the RFDS for fluid minerals, approximately 20 miles of new roads would increase fragmentation of habitat, and possibly increase public access leading to harassment of species and opportunities for the introduction of invasive plants, all of which would reduce habitat quality.

Geothermal field development would disturb approximately 60 acres of habitat in the long term. This includes five wells, four miles of road, and collection facilities. The major difference

between field development and exploration is the length of the habitat disturbance (long term for field development) and the lack of seasonal restrictions. The field development would cause permanent changes to habitat and yearlong disturbance of wildlife.

Approximately 300 acres of habitat for special status plants would be open to Fluid Minerals Leasing. Examples of special status plants are Cooper's hymenoxys, silky cryptantha, Starveling milkvetch, iodinebush, and red glasswort. NSO stipulations, designed to protect other resources, such as steep slopes, highly erodible soils, and riparian areas, would provide protection for approximately 90 of the 300 acres of leasable habitat for special status plant species, such as Hoary willow, alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha. Although surface disturbance from Fluid Minerals development could result in loss of individual plants and degradation of habitat, impacts would be avoided or reduced through site-specific mitigation, such as directional drilling. The approximate acres of special status plant habitat with oil and gas and geothermal resource potential on public lands is identified in **Table 4.2.7-5**.

Solid Leasable Minerals

In Alternative A, approximately 591,200 acres (96% of the planning area) would be open for Solid Leasable Minerals leasing. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 11,400 acres would protect ACECs, and RNAs.

It is anticipated that an additional 479 acres of surface would be disturbed when mining for phosphate. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 450 acres (94%) of the disturbed acreage would be reclaimed. Twenty-nine acres would not be vegetated and would not provide special status fauna habitat. Surface disturbance would likely occur on existing leases and no populations of special status fauna are known to occur in those locations. Two acres of Red Glasswort habitat occur on some alkali soils related to sodium (salt) mineralization in the far eastern portion of the PFO. However, no leases have been issued and the potential for future mining is extremely Low considering that there has not been any sodium mining in southeastern Idaho since the late 1800s.

Any solid leasable mineral development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be examined through the NEPA process and measures would be implemented to ensure that no unnecessary degradation of greater sage-grouse habitat would occur.

Approximately 312 acres of special status plant habitat is open to Solid Leasable Mineral development. However, impacts on special status plants are not expected because none occur in known phosphate lease areas. Avoidance and/or site-specific mitigation would apply to all Solid Leasable Mineral development to prevent or reduce loss of individual special status plants and/or degradation of habitat. Approximately 1 acre of alderleaf mountain mahogany habitat would be protected through the solid leasable mineral closure in the Downey Watershed ACEC.

Mineral Materials

In Alternative A, approximately 581,800 acres (95% of the planning area) would be open for Mineral Materials disposal. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 21,500 acres would protect water and power

withdrawals, RNAs, and historic sites/trails. Special status species that occur in these areas would be protected by these closures.

Approximately 313 acres of special status plant habitat would be open to Solid Leasable Mineral development. However, impacts on special status plants are not expected because none occur in known phosphate lease areas – the only anticipated Solid Leasable Mineral that would likely be developed. Avoidance and/or site-specific mitigation would apply to all Solid Leasable Mineral development to prevent or reduce loss of individual special status plants and/or degradation of habitat.

It is anticipated that an additional approximately 333 acres of surface disturbance would occur from development of Mineral Materials over the next 20 years. Around 233 acres would be revegetated and reclaimed with 100 acres being left unvegetated due to gravelly or rocky substrate and a lack of topsoil at the sites. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). This acreage would not be vegetated and would not provide special status fauna habitat.

Mineral material development would be subject to site specific mitigation measures developed through the NEPA process. These mitigation measures would ensure that no unnecessary degradation of the sagebrush steppe habitat occurs.

Although approximately 261 acres of special status plant habitat would be open to Mineral Materials disposals, there would be little to no potential for Mineral Materials development in special status plant habitat. There would be some potential for sodium mining on approximately 2 acres of red glasswort habitat. However, the potential for development would be very Low considering that there has not been any sodium mining in southeastern Idaho since the late 1800s.

Mineral Materials closures for the Oregon Trail, Fort Hall Irrigation Project Withdrawal, and Downey Watershed Withdrawal would provide long-term protection to approximately 52 acres of special status plant habitat (e.g., silky cryptantha, Starveling milkvetch, Hoary willow, and alderleaf mountain mahogany) from surface disturbances. Avoidance and/or site-specific mitigation would apply to all Mineral Materials disposals to prevent or reduce loss of individual special status plants and/or the degradation of habitat.

<u>Locatable Minerals</u>
In Alternative A, approximately 582,600 acres (95% of the planning area) would be open for the location of mining claims. Nondiscretionary closures for approximately 29,700 acres exist to protect PWRs, various withdrawals, and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. Mineral entry withdrawal of approximately 1500 acres would be pursued to protect RNAs for 7 pristine plant communities, and important bald eagle and ferruginous hawk habitat.

Impacts from Recreation Direction: Alternative A would manage OHV use with the following designations: approximately 352,300 acres undesignated (lands not designated as either open, limited or closed), approximately 61,300 acres open to all vehicles, approximately 1,300 acres closed to all vehicles, and approximately 199,000 acres would be limited. Snowmobiles would

be restricted to designated routes on approximately 105,600 acres and approximately 20,100 acres would be closed to snowmobile use.

Both flora and fauna special status species would be impacted the most in undesignated or open areas from unrestricted OHV use during critical animal breeding, rearing seasons, or plant growth or seed set stages. Impacts would be the least in closed areas for both flora and fauna as no OHV use is allowed.

All of the greater sage-grouse habitat in the Curlew SGPA (western portion of the PFO) would be undesignated, while the East Idaho Upland SGPA (eastern portion of the PFO) would be a mixture of undesignated, limited, and some closed areas for OHVs.

The use of OHVs would be expected to impact both special status fauna and their habitat. Special status fauna would be disturbed during important periods of their lifecycles, such as winter and reproductive periods. This could result in decreased survival due to increased energy expenditures during the winter, as individual animals try to avoid areas used by OHVs. OHV use in the nesting areas of grouse could lead to nest abandonment and reduced reproductive success.

To protect greater sage-grouse habitats, seasonal restrictions (**Appendix D**), would apply to areas where OHV and snowmobile use is allowed.

Habitat would be affected by the loss of vegetation on pioneered roads and trails, increased fragmentation of habitat, and the decrease in habitat quality by the spread of invasive plant species. Both Yellowstone and Bonneville cutthroat trout habitat would be impacted at stream crossings where riparian vegetation would be destroyed, thereby increasing stream sediment.

The Blackfoot and Pocatello SRMAs (approximately 55,200 acres) may reduce habitat quantity and quality because of infrastructure development and increased human use. However, focusing recreational use in these SRMAs may decrease recreational use impact on special status species and habitats in other parts of the planning area. Any greater sage-grouse within these two SRMAs would be impacted if recreation increases in occupied habitat. However, if recreational use decreases in other sage-grouse occupied areas, this would have a long-term impact on greater sage-grouse by limiting the degradation of habitat to a confined area.

SRPs would be issued in this alternative. Stipulations would be added to permits to protect sensitive habitats (riparian, grouse nesting areas) and special status fauna during sensitive times of the year (raptor nests and greater sage-grouse sensitive habitat).

With regard to special status plants, trail and/or road establishment or cross-country travel by OHVs can result in the direct loss of individual plants and the degradation of habitat. Species most at risk from this type of use include Cooper's hymenoxys, Iodinebush, and red glasswort. Limiting motorized and mechanized vehicle use to existing roads and trails would contribute to maintaining approximately 171 acres of special status plant habitat (e.g., alderleaf mountain mahogany, silky cryptantha, Starveling milkvetch, and red glasswort).

Approximately 142 acres of special status plant habitat would be undesignated and open to OHV use. In addition, unauthorized use of motorized vehicles would be expected to occur across the planning area and would have the potential to result in the loss of individual plants and the degradation of habitat.

Impacts from Special Designations Direction: Alternative A has approximately 11,500 acres of ACECs and RNAs (2% of the planning area). Most of these areas were designated to preserve cultural sites, habitat for special status fauna, or a unique assemblage of plants. These areas would typically provide quality habitat for special status species, as they are managed with minerals and energy development restrictions (NSOs, discretionary closures, and withdrawals), control of OHV use (closed or limited), and livestock grazing restrictions (unavailable or fenced).

While none of the ACECs or RNAs would be maintained specifically for greater sage-grouse, protection of these areas would provide an indirect impact to sage-grouse by limiting the disturbance affecting potential nesting, brood rearing of sage-grouse or sagebrush steppe habitat.

With regard to special status plants, the Downey Watershed ACEC would protect approximately one acre of alderleaf mountain mahogany habitat from surface disturbances.

4.2.7.5 Alternative B

Impacts from Special Status Species Direction: In addition to management direction discussed in Alternative A, Alternative B would emphasize conserving, inventorying and monitoring, and increasing the habitats for special status fauna. Alternative B would include measures to maintain the globally important ferruginous hawk habitat in the Curlew Valley.

Additional direction regarding protection of key habitats for sage-grouse would be provided under this alternative and more monitoring of progress and cooperation with the IDFG would occur as compared to Alternative A.

A 0.6 mile radius protective buffer would be in place around each active sage-grouse lek. An active lek is one that has been attended by more than one male during the breeding season. The buffer would apply to temporary human disturbance (e.g., routine maintenance, inspections, construction activities) from March 1 through May 31. Future permitted/authorized activities that have the potential to disturb a lek would be allowed only after a site-specific NEPA analysis is conducted and mitigation measures implemented as necessary.

A buffer of 2.0 miles would be in place around occupied leks. Occupied leks are those that have been attended by at least two or more males in two or more of the previous 5 years. This buffer would apply to new infrastructure/facilities requiring permanent surface occupancy (e.g., major transmission power lines, communication towers, meteorological towers) yearlong.

Within the planning area there currently are twenty active leks, only one of which occurs on BLM-administered public lands. Of the remaining nineteen active leks, six would have buffers that partially occur on BLM-administered public lands if a 0.6 mile buffer were implemented. The total amount of BLM-administered public lands that these seven 0.6-mile buffers affect is approximately 1,761 acres or 0.29 percent of the BLM-administered public lands. None of these buffers would overlap areas with proposed management stipulations (e.g., no surface occupancy for Fluid Minerals) or exclusions (e.g., rights-of way exclusion areas).

Within the planning area there are currently a total of 27 occupied leks, two of which occur on BLM-administered public lands. Of the remaining occupied leks, 21 would have buffers on BLM-administered lands if a 2-mile buffer was implemented. The total amount of BLM-

administered public lands that these 23 buffers affect is 30,126 acres, or 4.9 percent of the BLM-administered public lands. Of these 30,126 acres, 286 acres overlap with areas covered by other management stipulations or exclusions. The buffered areas surrounding occupied leks would apply to new infrastructure/facilities resulting in permanent surface occupancy (e.g. major transmission lines, communication towers, meteorological towers, etc.) yearlong.

The success of sage-grouse mating would increase over time as lek buffers are implemented. All future permitted/authorized activities and potential threat(s) to the greater sage-grouse as identified in the *Conservation Plan for Greater Sage-Grouse in Idaho* (2006) would be analyzed through the NEPA process to analyze potential impacts and to determine the appropriate size of each buffer and associated mitigation measures.

In general, all BLM-authorized activities would be subject to special status plant management guidance (e.g., avoidance of occupied habitat); and this would contribute to maintaining approximately 313 acres of habitat. Avoidance of special status plants and habitat would reduce damage or loss by surface-disturbing activities (e.g., LUA, trails, roads, and range improvements.). Avoidance of surface-disturbing activities near habitat would contribute to the prevention of invasive species/noxious weed infestation.

Habitat acquired through land tenure adjustments would provide genetic flow between populations and would be managed to ensure long-term population sustainability. Over the long term, special status plant populations that require cross-pollination to reproduce healthy offspring would be impacted by the maintenance of habitat connectivity. In general, large populations are more resilient to extinction than small populations.

Impacts from Vegetation Direction: Alternative B would emphasize maintaining sagebrush structure and composition in a manner that would improve LHC. This improvement in habitat could impact representative special status fauna, specifically greater sage-grouse and Columbian sharp-tailed grouse. In this alternative, wildland fire suppression would continue to be emphasized.

Approximately 111,000 acres would be proposed for treatment in the sagebrush steppe types in this alternative, compared to approximately 35,000 acres in Alternative C and approximately 142,000 acres in Alternative D. Treatments would focus on stabilizing, restoring and rehabilitating vegetation resources. However, they would provide only minimal improvement over the long term by emphasizing stabilization, which would only slow downward trending ecological conditions resulting from historic cultivation, livestock grazing, fire suppression, habitat fragmentation and noxious weed invasions. All treatments in the sagebrush steppe habitat would be prioritized so greater sage-grouse key and source habitat would be protected, maintained or restored.

Using the indicators for the sagebrush steppe types, Alternative B would be similar to Alternative D in terms of the number of acres in LHC-A for the Low- and Mid-Elevation Shrub types. Alternative B would maintain approximately 19,000 more acres in LHC-A over the long term than Alternatives A and C. This would result in a greater long-term impact on greater sage-grouse than from Alternatives A and C by providing higher quality habitat.

Alternative B would also call for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution. This alternative would put a greater emphasis on pure aspen management and, over the long term, would maintain the second-most acreage (approximately 42,400 acres) in LHC-A, compared to approximately 38,800, approximately 56,900 and approximately 12,600 acres in Alternatives A, C, and D, respectively. In Alternative B, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer types would be similar to Alternatives A and C and likely greater than Alternative D.

Table 4.2.7-3 identifies the vegetation types and the BpS class used to evaluate impacts on Special Status Fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage would increase from 0 acres to approximately 7,200 acres after 10 years, and to approximately 27,800 acres after 30 years. At year 30, this would be 73% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding rearing habitat. These figures would be approximately 2,200 less acres after 10 years and approximately 9,700 less acres after 30 years than in Alternative A. Therefore, the impact on greater sage-grouse habitat in the Low-Elevation Shrub type would be increased over the long-term, but not as much as Alternative A.

In the crested wheatgrass seedings only approximately 7,500 acres would remain in the uncharacteristic class after both 10 and 30 years. Approximately 34,600 acres of seedings would provide improved special status fauna habitat because of increased shrub cover. At year 30, this would be 82% of the entire crested seedings acreage, resulting in improved nesting/brooding rearing habitat for the greater sage-grouse due to increased sagebrush cover.

For the Mid-Elevation Shrub type, the BpS Class B was evaluated which provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse in the desired range of 6-25% shrub cover. For purposes of analysis, Class B started with approximately 40,500 acres and increased to approximately 78,400 acres after 10 years due to a combination of treatments and succession. After 30 years, approximately 41,500 acres would remain in Class B due to succession with no additional treatments. After 10 and 30 years respectively, Alternative B would provide respectively 25,400 and 11,900 acres more in Class B than Alternative A resulting in improved nesting/brood rearing habitat by maintaining shrub cover in the 6-25% range.

In the Mountain Shrub type, BpS class B is used to evaluate special status fauna habitat. Class B provides the required shrub cover for special status fauna use. Class B would contain approximately 187,000 acres throughout the planning period. Alternatives A and B would provide the same amount of Mountain Shrub in BpS class B throughout the planning period. The impact on greater sage-grouse from maintaining the Mountain Shrub type would be the same for Alternatives A and B.

For the Aspen/Aspen Conifer Mix/Dry Conifer types, the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. At the beginning of the planning period, class B would contain approximately 500 acres; it would increase to approximately 800 acres by year 10 and 6,900 acres by year 30. At year 30, this would be 17% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved special status fauna habitat. Alternative B would provide the same short-term acres as Alternative A; but, in the long term, it would provide an additional, approximate, 5,000 acres in BpS class B.

With regard to special status plants, weed-free hay/straw would be required for BLM-authorized activities; and this would help to reduce the spread of invasive species/noxious weeds in special status plant habitat.

Impacts from Wildland Fire Management Direction: Alternative B would identify fewer acres (approximately 124,300) for treatments than Alternative D (approximately 162,170) but more than Alternatives A (approximately 3,400) and C (approximately 54,920). The fuels management treatments in Alternative B would include mechanical and chemical vegetation treatments and prescribed fire but, unlike Alternative A, would also include WFU. WFU would be suitable on approximately 265,000 acres within the planning area.

Treatments would be considered for portions of the Low- and Mid-Elevation Shrub, Mountain Shrub, Perennial Grass/Seedings, and Aspen/Aspen Conifer Mix/Dry Conifer types. Treatments in these areas would result in long-term impacts on special status fauna by improving habitat conditions in Low- and Mid-Elevation Shrub, Mountain Shrub, and Perennial Grass/Seedings. Wildland fire management treatment methods would be determined on a site-specific basis and would include protections for special status fauna and their habitats.

Approximately 18,950 acres in the Low-Elevation Shrub type, 25,400 acres in the Mid-Elevation Shrub type, and 16,500 acres in the Mountain Shrub type would be treated. These treatments would provide an indirect impact to greater sage-grouse by reducing the risk of wildland fire and reconnecting restoration and key habitats for the grouse. The use of WFU in greater sage-grouse habitats would be used only after site specific coordination with the IDFG. Fire use would be allowed on approximately 77,600 acres of key habitat, 82,400 acres of breeding habitat and 24,600 acres of winter habitat for the greater sage-grouse. This would result in improved habitat (e.g., nesting, brood rearing) to greater sage-grouse if used appropriately. Site specific mitigation or avoidance would be applied to reduce the degradation of grouse habitat.

With regard to special status plants, Cooper's hymenoxys, Starveling milkvetch, and silky cryptantha habitat could be treated with prescribed fire. The expected effects of fire on special status plants are listed in **Table 4.2.7-4**. Site-specific mitigation or avoidance would be applied to reduce adverse effects of prescribed fire on potentially susceptible special status plants.

WFU would be suitable on 34 acres of special status plant habitat and not appropriate on approximately 277 acres of special status plant habitat, as identified in **Table 4.2.7-9**.

Impacts from Lands and Realty Direction: In Alternative B, approximately 56,300 acres (Zone 4) would be identified for disposal. See action B-LR-3.1.3 for criteria used during land tenure adjustment decisions. These criteria could be used to retain important special status fauna habitat even if it is identified for disposal. Fifty percent (approximately 28,150 acres) would be expected to leave federal ownership during the planning period. Approximately 590,000 acres would be open for LUA development, approximately 21,900 acres would be managed as avoidance areas, and approximately 1,900 acres would be closed.

Table 4.2.7-9. Approximate Acres of Special Status Plant Habitat Where WFU Would be Suitable/Not Appropriate on Public Lands Under Alternative B

Special Status Plant Species	WFU	
	Not Appropriate	Suitable
Silky cryptantha/ Starveling milkvetch	168	0.0
Cooper's hymenoxys	0.0	29
Red glasswort	0.0	2
Red glasswort/ Iodinebush	76	0.0
Hoary willow	32	3
Alderleaf mountain mahogany	1	0.0
Total	277	34

Zone 4 would contain approximately 33,400 acres of Colombian sharp-tailed grouse winter range and approximately 7,800 acres of nesting habitat. It would also contain approximately 7,800 acres of key greater sage-grouse habitat. If half of each type of habitat leaves federal ownership, approximately 16,700 acres of Columbian sharp-tailed grouse winter range, approximately 3,900 acres of nesting habitat, and approximately 3,900 acres of key greater sage-grouse habitat would leave federal ownership. Alternative B would dispose of approximately 10,700 acres more winter habitat for Columbian sharp-tailed grouse, approximately 2,850 acres more of nesting habitat, and approximately 2,800 acres more greater sage-grouse key habitat than Alternative A. Alternative B would allow LUA development on approximately 28,300 acres more than Alternative A. The impact on greater sage-grouse would be dependent on the future use of these lands once disposed of. If they are managed in a similar manner to BLM management (dispersed recreation, etc), the impacts would be minimal. If management of the disposed lands changes to allow for more ground-disturbing activities (e.g., gravel pits, mining, agriculture), the impacts would result in a loss or degradation of habitat.

In general, special status plant habitat would be retained in federal ownership in Zones 1 and 2, and approximately 62 acres of special status plant habitat (e.g., Hoary willow, alderleaf mountain mahogany, and Cooper's hymenoxys) would be maintained. Special status plant habitat in Zones 3 and 4 would be at risk of disposal. There would be approximately 170 acres of special status plant habitat (e.g., silky cryptantha, Starveling milkvetch, and red glasswort) in Zone 3. Habitat on isolated and difficult-to-manage tracts of public lands would be at the highest risk for disposal in Zone 4. Approximately 79 acres of red glasswort and Iodinebush habitat would be at risk of disposal in Zone 4.

There would be approximately 20 acres of special status plant habitat (e.g., alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha) in the avoidance/exclusion areas for LUAs and approximately 293 acres in the open area for LUAs. Although the amount of surface disturbance from LUAs on public lands can vary considerably, approximately 164 acres of public land is disturbed annually. In general, surface-disturbing LUAs would be routed away from special status plant habitat to avoid or prevent the loss and degradation of habitat.

Impacts from Livestock Grazing Direction: Approximately 560,000 acres (91% of the planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area (approximately 3,600 acres) would be available for livestock grazing on a temporary non-renewable (TNR) basis as a tool to maintain or enhance wildlife habitat objectives. Authorizing livestock grazing through TNR to achieve habitat objectives would result in greater vegetation diversity and shrub cover which improves nesting habitat for Columbian sharp-tailed grouse.

Allotted grazing on the BSD would only be allowed if grazing practices are meeting or making significant progress towards meeting rangeland health standards. As progress is being made or standards are met riparian habitat along the Blackfoot River as well as fish habitat would be improved. If livestock grazing adjustments would be required in other areas, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Areas available for livestock grazing would be subject to the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a). The Guidelines would be used to reduce impacts on greater sage-grouse habitat. Implementation of management actions to improve greater sage-grouse habitat would include reductions in stocking rates, season of use adjustments, stubble height requirements, herding, fencing, education, and range improvements. Monitoring of vegetative resources (e.g., age class and structural diversity, diversity of native species, ground cover, and litter) and grazing use would be assessed to determine if livestock grazing management is meeting or making significant progress towards attaining Standard 4 (Native Plant Communities) and 8 (Threatened and Endangered Plants and Animals) of the Idaho Standards for Rangeland Health which addresses habitats suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Approximately 108 acres of special status plant habitat (e.g., Hoary willow, iodinebush, and red glasswort) would not be available to livestock grazing and approximately 205 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) would be available. **Table 4.2.7-8** lists the expected effects of livestock grazing on special status plants.

Implementation of the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would maintain or improve approximately 205 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) on public lands. On average, Idaho Standards for Rangeland Health assessments would be conducted on approximately 56,000 acres per year across the planning area. Implementation of management actions to improve special status plant habitat can include reductions in stocking rates, livestock grazing management plan modifications, season of use adjustments, stubble height requirements, herding, fencing, education, and range improvements. These management actions would reduce surface disturbance and invasive species/noxious weed spread and would result in improvements to, and the maintenance of, special status plant habitat.

Impacts from Minerals and Energy Direction: Alternative B would call for coordination with surface management agencies and private landowners on minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be

maintained or reestablished after mining-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities are similar to Alternatives C and D, while Alternative A has no similar objective.

Fluid Minerals

Alternative B identifies approximately 344,500 acres as open to leasing for Fluid Minerals exploration and development, in comparison to approximately 602,600 acres identified as open under Alternatives A, C, and D. Of these acres open to leasing under Alternative B, approximately 34,800 acres would have no restrictions, compared to 61,200 acres (Alternative A), 58,900 acres (Alternative C), and 60,900 acres (Alternative D). Alternative B would have seasonal restrictions on 83,700 acres, compared to 227,400 acres (Alternative A), 196,300 acres (Alternative C), and 226,300 acres (Alternative D). Approximately 226,000 acres under Alternative B would be subject to NSO stipulations to mitigate impacts on resources or resource uses, in comparison to 314,000 acres (Alternative A), 347,000 acres (Alternative C), and 315,400 (Alternative D). Areas of specific importance with an NSO stipulation in place under this alternative include the Soda Hills Management Area (approximately 18,700 acres) and Bear Lake Plateau/Sheep Creek Hills (approximately 19,400 acres), in addition to other identified areas, such as ACECs and RNAs, places with highly erodible soils, and those with public water reserves.

In addition, approximately 11,200 acres would be closed to Fluid Minerals Leasing, and 258,100 acres in the Curlew area would be administratively unavailable, whereas under Alternatives A, C, and D, no acres are identified as administratively unavailable.

In general, to protect greater sage-grouse winter range, the timing limitations, December 15 to March 1 wherever winter range is found or mapped, would be applied to approximately 9,000 acres of High potential areas, 3,500 acres of Medium potential, and 28,300 acres of Low potential. Active greater sage-grouse leks would have restrictions on temporary human disturbance within approximately 3,900 acres of High potential for oil and gas resources, and 10,000 acres of Low potential. The temporary human disturbance restriction surrounding active leks would occur from March 1 to May 31 within a 0.6 mile radius of leks. To protect greater sage-grouse nesting and brooding habitat, no permanent surface occupancy would occur on 31,200 acres of High potential, 18,400 acres of Medium potential, and 104,600 acres of Low potential throughout the PFO area. This applies to areas within 2.0 miles of an occupied lek and would be in effect throughout the year.

Management direction, such as requiring buffer zones for temporary human disturbance and for permanent infrastructure around active and occupied sage- grouse leks in sagebrush steppe habitat would reduce sagebrush habitat fragmentation.

The acres protected by NSOs and seasonal restrictions in this alternative are less than those under the other alternatives because closed areas and administratively unavailable areas would not need seasonal restrictions or NSO stipulations.

The administratively unavailable Curlew area contains approximately 258,100 acres, which encompasses a portion of the South Magic Valley and the entire Curlew Sage-Grouse Planning Area within the PFO planning area (Idaho Sage-grouse Advisory Committee 2006). By making

these areas administratively unavailable to exploration and field development, greater sage-grouse habitat would improve, for nesting and brood rearing activities.

Exploration and field development disturbances for Fluid Minerals would not take place on BLM-administered public lands in closed areas, in areas administratively unavailable, or in areas developed with NSO stipulations in place. Based on estimates from the RFDS, surface disturbance to these areas (Curlew area and Soda Springs Hills Management Area) would be decreased by 185 acres, when compared to Alternatives A and D. Under Alternative B, both the 60 acres of long-term disturbance to habitat for field development and the 125 acres of short-term disturbance would be eliminated. The 20 miles of new roads constructed during exploration and field development under the other alternatives would not occur under Alternative B in areas closed or developed with NSO stipulations.

Exploration and field development disturbances for geothermal resources would not take place on BLM-administered public lands in closed areas, in areas administratively unavailable, or in areas developed with NSO stipulations in place. Based on estimates from the RFDS, surface disturbance to these areas (Curlew area and Soda Springs Hills) would be decreased by 129 acres, when compared to Alternatives A and D. Under Alternative B, both the 60 acres of long-term disturbance to habitat for field development and the 69 acres of short-term disturbance would be eliminated. The 20 miles of new roads constructed during exploration and field development under the other alternatives would not occur under Alternative B in areas closed or developed with NSOs.

In areas closed, administratively unavailable, or developed with NSO stipulations, there would be no additional fragmentation of Shrub Steppe habitat caused by roads and well pads on public lands. Public access would not be enhanced by new roads, which would decrease disturbance to special status species such as greater sage-grouse and Columbian sharp-tailed grouse. This decreased disturbance could be especially important during both the breeding and winter seasons.

Introduction of invasive species and noxious weeds would be reduced because roads are a major source of introductions. This would help maintain the quality of special status species habitat. Wildfires reduce the amount of usable greater sage-grouse and Columbian sharp-tailed grouse winter range (at least during the short term) by decreasing the amount of shrubs. Fewer miles of roads, in areas closed, administratively unavailable, or developed with NSOs, would mean reduced chances of accidentally starting wildfires with vehicles from exhaust systems.

Developments with NSO stipulations on BLM-administered public lands may shift exploration and field development to adjacent private lands. The quality of special status species habitat on public lands would be maintained and not impacted by exploration or field development. The impact of shifting exploration and field development to private lands is unknown as such lands could provide quality habitat or been converted to cropland or nonnative grassland which provides lower quality habitat than native rangelands..

The administratively unavailable Curlew area would protect approximately 90,100 acres of ferruginous hawk habitat, approximately 223,200 acres of greater sage-grouse habitat, and approximately 250,000 acres of Columbian sharp-tailed grouse habitat. NSO stipulations in the

Soda Spring Hills area would protect approximately 4,000 acres of key greater sage-grouse habitat and approximately 18,700 acres of Columbian sharp-tailed grouse stronghold.

Within the planning area, the most likely location for oil and gas exploration and development is on the Bear Lake Plateau/Sheep Creek Hills area. This area contains approximately 39,300 acres of greater sage-grouse breeding/brood rearing habitat and approximately 16,400 acres of winter habitat. During exploration, seasonal restrictions to protect greater sage-grouse would be enacted near leks and in brood rearing habitat (**Appendix D**). The seasonal restrictions for greater sage-grouse would limit oil and gas development in winter habitat on 9,000 acres of High potential, 200 acres in Medium potential areas, and 200 acres in Low potential areas. To protect leks, 3,900 acres of High potential, and 100 acres of Low potential would have seasonal restrictions. To protect greater sage-grouse nesting and brooding habitat, timing limitations would occur on 29,000 acres of High potential, 1,000 acres of Medium potential, and 200 acres of Low potential. For geothermal resources, timing limitations would be in place to protect greater sage-grouse habitat on 900 acres of High potential, 4,300 acres of Medium potential, and 4,100 acres of Low potential. To protect leks, timing limitations would be in place on 25 acres of High potential, 800 acres of Medium potential, and 3,100 acres of Low potential. Timing limitations would also protect nesting and brooding habitat from geothermal development on 3,000 acres of High potential, 8,700 acres of Medium potential, and 18,500 acres of Low potential.

If field development occurs, NSO stipulations to protect ACEC and RNAs, historic trails, public water reserves, erodible soils, and steep slopes would be enacted. These NSO stipulations, though not specifically for special status species habitat protection, would protect approximately 19,400 acres. The NSO stipulations would protect habitat on approximately 15,600 acres (39.7%) of greater sage-grouse breeding/brood rearing habitat and approximately 7,300 acres (44.5%) of greater sage-grouse winter habitat.

Pygmy rabbits also occur on the Bear Lake Plateau. Burrow surveys were conducted during the winter of 2006-2007. Two-hundred sixty-four burrows were located on public lands. Based on a small DNA sample of droppings (18 samples) approximately two-thirds of the burrows are pygmy rabbits, and the rest are occupied by mountain cottontails. If field development occurs, NSO stipulations would protect 24 (9%) of the documented burrows.

Approximately 261 acres of special status plant habitat (i.e., Cooper's hymenoxys, silky cryptantha, Starveling milkvetch, Iodinebush, and red glasswort) would be open to Fluid Minerals. Although, surface disturbance from Fluid Mineral development could result in loss of individual plants and degradation of habitat, impacts would be avoided and/or reduced through site-specific mitigation (e.g., directional drilling). An NSO stipulation for the Oregon Trail, Fort Hall Irrigation Project and Downey Watershed ACEC would provide protection of approximately 52 acres of special status plant habitat (i.e., Hoary willow, alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha) from surface disturbance. The approximate acres of special status plant habitat with oil and gas and geothermal resource potential on public lands is given in **Table 4.2.7-5**.

<u>Solid Leasable Minerals</u>

Alternative B would allow the leasing of approximately 564,900 acres (92% of the planning area) for Solid Leasable Minerals. A nondiscretionary closure for the approximately 11,200 acres

of WSAs and discretionary closures of approximately 20,200 acres would protect RNAs and the public land portion of the Soda Springs Hills Management Area.

It is anticipated that an additional 479 acres of surface would be disturbed when mining for phosphate. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 450 acres (94%) of the disturbed acreage would be reclaimed. Twenty nine acres would not be vegetated and would not provide special status fauna habitat. Surface disturbance would likely occur on existing leases and no populations of special status fauna are known to occur in those locations. Two acres of Red Glasswort habitat occurs on some alkali soils related to sodium (salt) mineralization in the far eastern portion of the PFO. However, no leases have been issued and the potential for future mining is extremely low considering that there has not been any sodium mining in southeastern Idaho since the late 1800s.

Any solid leasable mineral development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be assessed through the NEPA process with measures implemented to ensure that loss of sage-grouse habitat would be mitigated.

Approximately 313 acres of special status plant habitat is open to Solid Leasable Mineral development. However, impacts on known special status plants are not expected because none occur in known phosphate lease areas. In the event new plant species are added to BLM's sensitive species list or habitat is identified within known phosphate lease area's, avoidance and or site/specific mitigation would apply to Solid Leasable Mineral development to prevent or reduce loss of individual special status plants and/or degradation of habitat.

Mineral Materials

Alternative B would allow mineral disposal on approximately 582,400 acres (94.9% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 20,200 acres would protect RNAs and the public land portion of the Soda Springs Hills Management Area.

It is anticipated that an additional 313 acres within special species habitat would be disturbed when mining for Mineral Materials. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 100 acres (30%) of the disturbed acreage would not be reclaimed due to gravelly or rocky substrate and a lack of topsoil at the sites. This acreage would not be vegetated and would not provide special status fauna habitat.

Mineral material development would be subject to site specific mitigation measure developed through the NEPA process. These mitigation measures would ensure that no unnecessary degradation of greater sage-grouse habitat occurs.

Although, approximately 308 acres of special status plant habitat would be open to Mineral Materials disposals there would be little-to-no potential for Mineral Materials development in special status plant habitat. Avoidance and/or site-specific mitigation would apply to all Mineral Materials disposals to prevent or reduce the loss of individual special status plants and/or the degradation of habitat.

Locatable Minerals

Alternative B would allow mining claims on approximately 564,900 acres (92% of the planning area). A nondiscretionary closure for approximately 29,700 acres would protect PWRs, various withdrawals, and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. A discretionary closure would be pursued to protect approximately 19,200 acres in the Soda Springs Hills Management area and Bowen Canyon Bald Eagle Sanctuary ACEC. Mineral entry withdrawal of approximately 1,900 acres would be finalized to protect RNAs.

It is anticipated that 105 acres of surface would be disturbed in the future when mining for Locatable Minerals. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 23 acres (22%) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide special status fauna habitat.

Locatable mineral development would be subject to site specific mitigation measure developed through the NEPA process. These mitigation measures would ensure that no unnecessary degradation of greater sage-grouse habitat occurs.

Impacts from Recreation Direction: In Alternative B, approximately 12,700 acres (WSAs and RNAs) would be closed to OHV use. The remaining approximately 601,100 acres of the planning area would be designated limited for OHV use. All WSAs, RNAs, and ACECs, the Pocatello SRMA, the Soda Springs Hills Management Area, and big game winter ranges would be closed to snowmobiles. Snowmobiles would be prohibited on approximately 361,300 acres (59% of the planning area). The remainder of the planning area would be open to snowmobiles. Limiting the usage of OHVs and snowmobiles would limit the potential impacts on greater sage-grouse and their habitat.

The limited designation for OHV should reduce cross-country travel. This would result in less habitat loss and fragmentation. It would also reduce the disturbances of special status fauna during critical periods of the year (nesting). Since greater sage-grouse can be particularly sensitive to OHV use, the limited designation would reduce disturbance to individuals of the species during breeding, nesting or brood rearing periods (Idaho Sage-grouse Advisory Committee 2006) . Other than in the Soda Springs Hills Management Area, special status fauna are offered no protection from snowmobiles. Impacts would be similar to those identified in Alternative A.

Management of SRMAs and SRPs would have impacts similar to those identified in Alternative A.

Limiting OHV use to existing roads and trails would also contribute to maintaining approximately 308 acres of special status plant habitat. Unauthorized use of motorized vehicles would be expected to occur across the planning area and would have the potential to result in loss of individual plants and degradation of habitat.

Implementation of practices to address travel management (e.g., signs, maps, maintenance, construction, reconstruction, field presence, law enforcement, and education) could impact approximately 313 acres of special status plant habitat. These management practices would

reduce surface disturbances in special status plant habitat from unauthorized use and/or cross-country travel. This would result in the maintenance or improvement of special status plant habitat.

Impacts from Special Designations Direction: Alternative B would contain an additional RNA of approximately 400 acres. It would have the same type of restrictions as RNAs in Alternative A and should impact special status species habitat similarly. With regard to special status plants, impacts would be similar to those described under Alternative A.

4.2.7.6 Alternative C

Impacts from Special Status Species Direction: Impacts on special status fauna would be the same as those identified under Alternative B.

To enhance greater sage-grouse habitat or prevent the loss of habitat, management guidance under Alternative C would focus on several priority areas which include the Curlew Valley (approximately 37,000 acres), Bear Lake Plateau/Cheep Creek Hills (approximately 44,000 acres), Pleasantview Hills/Samaria Hills (approximately 101,100 acres), Lower Blackfoot River (approximately 10,900 acres), and Deep Creek Mountain (approximately 74,400 acres). Each of these areas would have a number of measures designed to protect greater sage-grouse habitat which include ensuring on an annual basis at least one-third of the area would provide adequate nesting habitat, using livestock grazing to maintain or improve native vegetation conditions (LHC-A), and situating new ROWs so impacts on greater sage-grouse breeding, nesting and brood rearing would be reduced. Management of these areas would provide short-term and long-term impacts on greater sage-grouse.

Impacts on special status plants would include the following:

<u>Priority Areas</u>
The Bear Lake Plateau/Sheep Creek Hills priority area would maintain or improve approximately 168 acres of Starveling milkvetch and silky cryptantha habitat. NSO stipulation for Fluid Minerals would preclude surface disturbance a ¼ mile of special status plant habitat. Surface disturbing LUAs would also be routed at a minimum of a ¼ mile from special status plant habitat.

To conserve Starveling milkvetch and silky cryptantha livestock grazing management may see adjustments in preference, implementation of livestock grazing systems, adjustments in season of use, stubble height requirements, herding, fencing, education, and watering facility developments. Public lands with special status plant habitat would be retained under federal ownership. Combined these actions would provide strong special status plant conservation and long-term maintenance of habitat on approximately 168 acres of public land.

The Malad River priority area would maintain or improve approximately 76 acres of red glasswort and iodinebush habitat. BLM would take actions (e.g., working with adjacent landowners, prevent water diversions and surface-disturbing activities, and control invasive species/noxious weeds) to maintain a natural hydrological regime in habitat. Travel management plan restrictions would be signed, and this would reduce surface disturbance from unauthorized use. Surface-disturbing LUAs would also be routed at a minimum of a ¼ mile from special status plant habitat. NSO stipulation and discretionary closures would preclude surface disturbance

Mineral and Energy development. Public lands within the priority area would be retained under federal ownership.

This area would not be available to livestock grazing, and this would result in less surface disturbance, alterations of the native plant community and hydrological cycle, and the prevention of invasive species/noxious weeds. Combined, these actions would provide special status plant conservation and the long-term maintenance of habitat on approximately 76 acres of public land.

The Deep Creek Mountains priority area would maintain or improve approximately 19 acres of Cooper's hymenoxys habitat. Travel management plan restrictions would be signed and this would reduce surface disturbance from unauthorized use. Surface disturbing LUAs would also be routed at a minimum of a ¼ mile from special status plant habitat.

To conserve special status plants, livestock grazing management could see adjustments in preference, implementation of livestock grazing systems, adjustments in season of use, stubble height requirements, herding, fencing, education, and watering facility developments. Public lands with special status plant habitat would be retained under federal ownership. These actions combined would provide long-term maintenance and the improvement of habitat on approximately 19 acres of public land.

The Stump Creek priority area would maintain or improve approximately 2 acres of red glasswort habitat. The BLM would take actions (e.g., work with adjacent landowners, prevent surface-disturbing activities, and control invasive species/noxious weeds) to maintain a natural hydrological regime in habitat. Travel management plan restrictions would be signed and this would reduce surface disturbance from unauthorized use. Surface disturbing LUAs would also be routed from special status plant habitat. Minerals and energy development restrictions (e.g., NSO stipulation, discretionary closures) would be applied to this Priority Area resulting in habitat maintenance by preventing soil disturbance. Public lands within this Priority Area would be retained under federal ownership. These actions combined would provide long-term maintenance and the improvement of habitat on approximately 19 acres of public land.

The Pleasantview Hills/Samaria Mountain priority area would maintain or improve approximately 10 acres of Cooper's hymenoxys habitat. Travel management plan restrictions would be signed and this would reduce surface disturbance from unauthorized use. Surface disturbing LUAs would also be routed at a minimum of a ¼ mile from special status plant habitat.

To conserve special status plants, livestock grazing management may be adjusted through reductions in preference, implementation of livestock grazing systems, adjustments in season of use, stubble height requirements, herding, fencing, education, and watering facility developments. Public lands with special status plant habitat would be retained under federal ownership. These actions combined would provide long-term maintenance and the improvement of habitat on approximately 10 acres of public land.

In general, all BLM-authorized activities would be subject to special status plant management guidance (e.g., avoidance of occupied habitat) and this would contribute to maintaining approximately 313 acres of habitat. Avoidance of special status plants and habitat would reduce damage or loss through surface-disturbing activities (e.g., LUA, trails, roads, range and

improvements). Avoidance of surface-disturbing activities near habitat would contribute to the prevention of invasive species/noxious weed infestation.

Public education and outreach on special status plants would increase awareness of rare plant conservation, biodiversity, management issues, and plant ecology of public lands. As a result, unauthorized use of motorized and mechanized would be reduced, monitoring and inventory may increase, and better management actions and cooperative HMPs may be developed.

Pursuing conservation easements in land exchanges would also prevent degradation and the loss of habitat. This would contribute to maintaining special status plant habitat that may be exchanged.

The BLM would take actions (e.g., work with adjacent landowners, prevent surface-disturbing activities, and control invasive species/noxious weeds) to maintain a natural hydrological regime in riparian areas with special status plant habitat. This would contribute to the maintenance of approximately 113 acres of special status plant habitat across the planning area.

Improving habitat connectivity through inter-agency cooperation, the acquisition of lands and conservation easements, and inter-agency cooperation would increase special status plant management across the planning area. This would impact the maintenance and improvement of special status plant habitat in southeastern Idaho.

Impacts from Vegetation Direction: Alternative C would continue to emphasize wildland fire suppression in sagebrush habitat. This alternative would also emphasize maintaining sagebrush structure and composition in a manner that would improve LHC. This improvement in habitat could impact representative special status fauna, specifically greater sage-grouse and Columbian sharp-tailed grouse by improving habitat quality.

Approximately 35,000 acres would be proposed for treatment in the sagebrush steppe types in this alternative, compared to approximately 111,000 acres in Alternative B and approximately 142,000 acres in Alternative D. Treatments would focus on stabilizing, restoring and rehabilitating resources.

Using the indicators for the sagebrush steppe types, Alternative C would be similar to Alternative A in terms of acres in LHC-A for the Low- and Mid-Elevation Shrub types. Alternative C would maintain approximately 17,000 acres less LHC-A than Alternative B and approximately 24,000 acres less LHC-A than Alternative D over the long term.

Alternative C would also call for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution within these vegetation types. This alternative would put a greater emphasis on pure aspen management and, over the long term, would maintain the most acreage (approximately 56,900 acres) in LHC-A, compared to approximately 38,800, approximately 42,400 and approximately 12,600 acres in Alternatives A, B and D, respectively. In Alternative C, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer types would be similar to Alternatives A and B and likely greater than Alternative D. This alternative would also call for a very minimal amount of treatment in the Wet/Cold Conifer, Riparian and Other/Vegetated Lava types, totaling approximately 400 acres. Impacts from these treatments should be very limited.

Table 4.2.7-3 identifies the vegetation types and the BpS class used to evaluate impacts on Special Status Fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage would increase from 0 acres to approximately 7,200 acres after 10 years, and approximately 36,400 acres after 30 years. At year 30, this would be 96% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding rearing habitat over the long-term for greater sage-grouse.

These figures would be approximately 2,200 less acres after 10 years and approximately 1,100 less acres after 30 years when compared to Alternative A. The short-term results would be the same for Alternatives B and C; but, in the long term, Alternative C would provide 8,600 more acres in BpS class C than Alternative B.

In the crested wheatgrass seedings, approximately 40,800 acres would remain in the uncharacteristic class after both 10 and 30 years. In Alternative C, approximately 1,300 acres (approximately 3% of crested wheatgrass acres) of seedings would provide improved special status fauna habitat because of increased shrub cover. This would be a slight improvement over Alternative A, but much less than the approximately 34,600 acres improved in Alternative B.

In the Mid-Elevation Shrub type the BpS evaluation class is B. Once again this vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. The analysis period would begin with approximately 40,500 acres in class B and would increase to approximately 69,600 acres after 10 years. After 30 years, only approximately 37,500 acres would remain in Class B. At year 30, this would be 26% of the entire Mid-Elevation Shrub type, resulting in improved nesting/brooding rearing habitat for sage-grouse. After 10 years Alternative C would provide approximately 16,600 acres more than Alternative A, but approximately 8,800 acres less than Alternative B. After the 30-year period, Alternative C would provide approximately 7,800 acres more than Alternative A, but approximately 4,100 acres less than Alternative B.

In the Mountain Shrub type BpS class B is once again used to evaluate special status fauna habitat. Class B provides the required shrub cover for special status fauna use. Class B would contain approximately 187,000 acres throughout the analysis period. Alternatives A, B and C would provide the same amount of Mountain Shrub in BpS class B throughout the planning period. The impacts on greater sage-grouse would be the same as those described under Alternatives A and B.

For the Aspen/Aspen Conifer Mix/Dry Conifer types the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. The acreage would increase from approximately 500 acres, to approximately 800 acres by year 10 and approximately 29,300 acres by year 30. At year 30, this would be 72% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved nesting/brooding rearing habitat. The short-term acres would be equal for Alternatives A, B and C. The long-term results for Alternative C would be an increase of approximately 27,400 acres above Alternative A, and approximately 22,400 acres above Alternative B.

Impacts on special status plants would be the same as those identified under Alternative B.

Impacts from Wildland Fire Management Direction: Alternative C would identify more acres (approximately 54,920) for treatments than Alternative A (approximately 3,400) but fewer than Alternatives B (approximately 124,250) and D (approximately 162,170). The fuels management treatment methods in Alternative B would be the same as those discussed in Alternative B. However, the vegetation types and number acres treated would be different. Alternative C would allow WFU on approximately 212,600 acres (20% less than in Alternative B).

Treatments would be considered for portions of the Mid-Elevation Shrub, Mountain Shrub, Perennial Grass/Seedings, and Aspen/Aspen Conifer Mix/Dry Conifer types, as well as the Wet/Cold Conifer, Riparian, and Other/Vegetated Lava vegetation types. Short-term impacts would result from surface-disturbing activities. Wildland fire management treatment methods would be determined on a site-specific basis and would include protections for special status fauna and their habitats.

Approximately 16,500 acres in the Mid-Elevation Shrub type and 16,600 acres in the Mountain Shrub type would be treated. These treatments would provide an indirect impact to greater sage-grouse by reducing the risk of catastrophic wildland fire and reconnecting restoration and key habitats for the grouse. Treatments may have short-term impacts on greater sage-grouse from disturbance from these activities. Vegetation treatments would be subject to mitigation measures to offset these impacts. Under Alternative C, WFU would be allowed on approximately 75,000 acres of key habitat, 71,800 acres of breeding habitat and 18,800 acres of winter habitat. This is slightly less than what would be allowed under Alternative B. As with Alternatives B, the use of WFU in greater sage-grouse habitats may be used only after site specific coordination with the IDFG and measures to minimize or avoid impacts to grouse from WFU would be implemented.

When multiple fire ignitions occur the priority for suppression would be to protect human health and safety first, then to protect greater sage-grouse source, key, and restoration habitats. Using these priorities would have an impact on greater sage-grouse by protecting important grouse habitats from wildland fire.

Regarding special status plants, Cooper's hymenoxys, Starveling milkvetch, and silky cryptantha habitat could be treated with prescribed fire. The expected effects of wildland fire on special status plants are listed in **Table 4.2.7-4**. Site-specific mitigation or avoidance would be applied to reduce adverse effects of prescribed fire on special status plants.

WFU would be suitable on approximately 21 acres and not appropriate on approximately 290 acres of special status plant habitat, as identified in **Table 4.2.7-10**.

Impacts from Lands and Realty Direction: Alternative C would have approximately 49,900 acres in disposal Zone 4. Fifty percent (approximately 24,950 acres) would be expected to leave federal ownership. Approximately 590,000 acres would be open for LUA development, approximately 21,900 acres would be managed as avoidance areas and approximately 1,900 acres would be closed.

Table 4.2.7-10. Approximate Acres of Special Status Plant Habitat Where WFU Would be Suitable/Not Appropriate on Public Lands Under Alternative C

Special Status Plant Species	WFU	
	Not Appropriate	Suitable
Silky cryptantha/ Starveling milkvetch	168	0.0
Cooper's hymenoxys	18	11
Red glasswort	1	1
Red glasswort/ Iodinebush	76	0
Hoary willow	27	8
Alderleaf mountain mahogany	0	1
Total	**290**	**21**

Zone 4 would contain approximately 28,400 acres of Colombian sharp-tailed grouse winter range and approximately 7,700 acres of nesting habitat. It would also contain approximately 7,800 acres of key greater sage-grouse habitat. If half of each type of habitat leaves federal ownership, approximately 14,200 acres of Columbian sharp-tailed grouse winter range, approximately 3,850 acres of nesting habitat, and approximately 3,900 acres of key greater sage-grouse habitat would leave federal ownership. Alternative C would dispose of approximately 10,000 acres more winter habitat for Columbian sharp-tailed grouse, approximately 2,950 acres more of nesting habitat, and approximately 2,800 acres more greater sage-grouse key habitat than Alternative A. The potential impacts to greater sage-grouse would be dependent on the future use of these lands once disposed. If they are managed in a similar manner to BLM management (dispersed recreation, etc), the impacts would likely be similar to those resulting from current management. If management of the disposed of lands changes to allow for more disturbing activities (e.g., gravel pits, mining, agriculture), the impacts on sage-grouse would potentially include degradation or loss of habitat.

LUAs would require that the holders apply the appropriate management techniques, practices, and guidelines to protect flora and fauna (**Appendix C**). These would likely help minimize any potential impacts to greater sage-grouse resulting from developments.

Alternative C would dispose of approximately 2,500 acres less Columbian sharp-tailed grouse winter habitat, the same amount of nesting habitat and the same amount of key greater sage-grouse habitat as Alternative B. Alternative C would allow LUA development on approximately 28,300 acres more than Alternative A, but would be equal to Alternative B in this respect.

Regarding special status plants, habitat would be retained in federal ownership in Zones 1 and 2 and approximately 232 acres of special status plant habitat (e.g., Cooper's hymenoxys, red glasswort, Hoary willow, Starveling milkvetch, silky cryptantha, and alderleaf mountain mahogany) would be maintained. Special status plant habitat in Zones 3 and 4 would be at risk of disposal. There would be no special status plant habitat in Zone 3. Approximately 79 acres of Hoary willow, red glasswort, and Iodinebush habitat would be at risk of disposal in Zone 4.

There would be approximately 20 acres of special status plant habitat (e.g., alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha) in the avoidance/exclusion area for

LUAs, and approximately 293 acres in the open area for LUAs. Although the annual amount of surface disturbance from LUAs on public lands can vary considerably, on average approximately 164 acres of public land is disturbed. In general, surface-disturbing LUAs would be routed away from special status plant habitat to avoid or prevent loss and degradation of habitat.

Impacts from Livestock Grazing Direction: Approximately 555,300 acres (90% of the planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would not be available for livestock grazing. Habitat, particularly nesting habitat, would be improved for Columbian sharp-tailed grouse. Livestock grazing would also cease, except for trailing, on the BSD. This should improve riparian habitat along the Blackfoot River and improve habitat for fish. Livestock grazing adjustments would be required to address impacts on special status fauna and would be accomplished through the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) process.

Impacts on greater sage-grouse from livestock grazing direction would be slightly less than under Alternatives A and B. Since there would be fewer acres available for grazing and fewer AUMs under Alternative C, the potential impacts on grouse would be decreased.

Approximately 127 acres of special status plant habitat (e.g., Hoary willow, iodinebush, and red glasswort) would not be available to livestock grazing and approximately 186 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) would be available. **Table 4.2.7-8** identifies the expected effects of livestock grazing on special status plants. Although livestock grazing would not be available on 127 acres of public lands, unauthorized grazing use may still occur.

Implementation of Idaho Standards for Rangeland Health would maintain or improve approximately 127 acres of special status plant habitat (e.g., Cooper's hymenoxys, Starveling milkvetch, silky cryptantha, and red glasswort) on public lands. On average, Idaho Standards for Rangeland Health would be conducted on approximately 56,000 acres/year across the planning area. Implementation of management actions to improve special status plant habitat can include reductions in preference, livestock grazing management plan modifications, season of use adjustments, stubble height requirements, herding, fencing, education, and range improvements. These management actions would reduce surface disturbance and invasive species/noxious weed spread and would result in improvements to, and the maintenance of, special status plant habitat.

Impacts from Minerals and Energy Direction: Alternative C would also call for coordination with surface management agencies and private landowners on minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be maintained or reestablished from mining-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities would be similar to Alternatives B and D and would have a greater impact over Alternative A, where no similar objective would be stated.

<u>Fluid Minerals</u>

Under Alternative C, Fluid Minerals would be leased with an NSO stipulation on approximately 347,300 acres, and seasonal restrictions would occur on approximately 196,300 acres.

Alternative C would add protection to the special status fauna habitat (sage-grouse, pygmy rabbit, and ferruginous hawk) in the Bear Lake Plateau/Sheep Creek Hills priority management area. The NSOs would protect habitat in ACECs and RNAs, as well as in riparian areas and perennial streams.

The seasonal restrictions would decrease disturbance caused by exploration to grouse during nesting season (**Tables 4.3.4-2** and **4.3.4-3**). Impacts on habitat from exploration could still happen during a different period of the year. The seasonal restrictions for greater sage-grouse would limit oil and gas development in winter habitat on 3,500 acres in Medium potential areas and 28,200 acres in Low potential areas. To protect leks, 1,000 acres of High potential and 10,000 acres of Low potential would have seasonal restrictions. To protect greater sage-grouse nesting and brooding habitat, timing limitations would occur on 5,500 acres of High potential, 18,400 acres of Medium potential, and 104,500 acres of Low potential. For geothermal resources, timing limitations would be in place to protect greater sage-grouse habitat on 7,200 acres of Medium potential, and 24,500 acres of Low potential. To protect leks, timing limitations would be in place on 3,200 acres of Medium potential, and 7,900 acres of Low potential. Timing limitations would also protect nesting and brooding habitat from geothermal development on 3,900 acres of High potential, 31,600 acres of Medium potential, and 92,900 acres of Low potential.

Solid Leasable Minerals

Alternative C would allow the leasing of approximately 582,400 acres (95% of the planning area) for Solid Leasable Minerals. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 20,200 acres would protect RNAs and the Soda Springs Hills Management Area.

It is anticipated that an additional 479 acres of surface would be disturbed when mining for phosphate. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 450 acres (94%) of the disturbed acreage would be reclaimed. Twenty-nine acres would not be vegetated and would not provide special status fauna habitat.

Any solid leasable mineral development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be assessed through the NEPA process and measures would be implemented to ensure that impacts on greater sage-grouse or its habitat would be mitigated.

Approximately 313 acres of special status plant habitat is open to Solid Leasable Mineral development. However, impacts on special status plants are not expected because none occur in known phosphate lease areas. Avoidance and/or site-specific mitigation would apply to all Solid Leasable Mineral development to prevent or reduce loss of individual special status plants and/or degradation of habitat.

Mineral Materials

Alternative C would allow mineral disposal on approximately 544,800 acres (89% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 57,800 acres would protect RNAs,

the Soda Springs Hills Management Area, the BSD, rare plant habitat, and various withdrawal areas.

It is anticipated that an additional 333 acres of surface would be disturbed when mining for Mineral Materials. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 100 acres (30%) of the disturbed acreage would not be reclaimed due to gravelly or rocky substrate and a lack of topsoil at the sites. This acreage would not be vegetated and would not provide special status fauna and flora habitat.

Any mineral materials development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be examined through the NEPA process and measures would be implemented to ensure that impacts on greater sage-grouse or its habitat would be mitigated.

Approximately 313 acres of special status plant habitat would be closed to Mineral Materials disposals, and this would result in long-term maintenance of special status plant habitat across the planning area.

Locatable Minerals

Impacts on special status fauna would be the same as those identified under Alternative B.

Impacts from Recreation Direction: Alternative C would manage OHVs in the same manners as Alternative B. Over the snow vehicle management is more restrictive in this alternative. In addition to the areas closed in Alternative B, snowmobiles would be limited to designated routes in all big game winter ranges**.** Snowmobiles would be prohibited on approximately 361,300 acres (59% of the planning area). Disturbance of wintering special status fauna would be reduced. This should improve survival and reproduction, as less energy would be expended avoiding snowmobiles. Overall, the restrictions placed on OHV and over-the-snow vehicles would potentially have an impact on greater sage-grouse by limiting disturbance on sage-grouse or its habitat.

Management of SRMAs and SRPs would have impacts similar to those identified in Alternative A; however the addition of the Campground SRMA under this alternative would increase total SRMA designations by 430 acres. The slight increase in SRMA acreage within the PFO would result in a slight overall increase in impacts on greater sage-grouse within the PFO. Impacts would be greater within SRMAs. However, if SRMAs attract recreation into those areas from other non-SRMA areas, there could be a reduction of impacts on sage-grouse outside of SRMAs. In that case, an overall increase in impacts on greater sage-grouse would not occur.

Limiting OHV use to existing roads and trails would also contribute to maintaining approximately 313 acres of special status plant habitat. Unauthorized use of motorized vehicles is expected to occur across the planning area and has the potential to result in loss of individual plants and degradation of habitat.

Impacts on special status plants would be the same as those identified under Alternative B.

Impacts from Special Designations Direction: Impacts on special status fauna would be the same as those identified under Alternative B.

Impacts on special status plants would be the same as those identified under Alternative A.

4.2.7.7 Alternative D

Impacts from Special Status Species Direction: Impacts on special status fauna would be the same as those identified under Alternative A.

For greater sage-grouse, habitat would be maintained or enhanced, human activities that would disrupt behavior would be reduced, and undesirable habitat modifications from authorized activities or natural disturbances would be minimized. In addition to the specific measures directed at the greater sage-grouse, this species would likely indirectly benefit from the protections afforded to other species, particularly if the range of those species overlap with the greater sage-grouse.

In general, all BLM-authorized activities would be subject to special status plant management guidance (e.g., avoidance of occupied habitat), and this would contribute to maintaining approximately 313 acres of habitat. Avoidance of special status plants and habitat would reduce damage or loss through surface-disturbing activities (e.g., LUA, trails, roads, and range improvements). Avoidance of surface-disturbing activities near habitat would also prevent of invasive species/noxious weed spread into habitat.

Impacts from Vegetation Direction: Alternative D would continue to emphasize wildland fire suppression, and priority would be placed on protecting, maintaining and providing resources and resource uses for commercial use while secondarily providing protection of sagebrush habitat and, in turn, their representative species, such as the greater sage-grouse. This alternative would also emphasize maintaining sagebrush structure and composition in a manner that would improve LHC classes, particularly improving LHC-A to its highest level relative to current conditions and those predicted in the other alternatives. This improvement in habitat could beneficially impact representative special status fauna species (specifically greater sage-grouse and Columbian sharp-tailed grouse).

Approximately 142,000 acres would be proposed for treatment in the sagebrush steppe types in this alternative compared to approximately 111,000 acres in Alternative B and approximately 35,000 acres in Alternative C. Treatments would focus on stabilizing, restoring and rehabilitating vegetation resources. These treatments would likely result in short-term impacts to greater sage-grouse from disturbance. The treatments in the sagebrush steppe would likely result in a long-term impact on greater sage-grouse by improving the habitat conditions.

Using the indicators for the sagebrush steppe types, Alternative D would maintain the most LHC-A for the Low- and Mid-Elevation Shrub types over the long term (approximately 176,000 acres). This would be approximately 21,500 acres more LHC-A than in Alternative A, approximately 7,100 acres more LHC-A than in Alternative B, and approximately 24,300 acres more LHC-A than in Alternative C over the long term. This would result in more habitat or higher quality habitat being available to greater sage-grouse than from other alternatives and would have a long-term beneficial impact on greater sage-grouse.

Alternative D also calls for vegetation treatments in the Aspen/Aspen Conifer Mix/Dry Conifer types to produce healthy age class distribution within these vegetation types. This alternative would put much less emphasis on pure aspen management and would, over the long term, maintain the least acreage (approximately 12,600 acres) in LHC-A, compared to approximately 38,800, approximately 42,400 and approximately 56,900 acres for Alternatives A, B and C, respectively. In Alternative D, impacts from treatments within the Aspen/Aspen Conifer Mix/Dry Conifer types would be less than in the other three alternatives. This alternative would also call for a very minimal amount of treatment in the Wet/Cold Conifer, Riparian and Other/Vegetated Lava vegetation types totaling approximately 400 acres. Impacts from these treatments should be very limited.

Table 4.2.7-6 identifies the vegetation types and the BpS class used to evaluate impacts on Special Status Fauna. The Low-Elevation Shrub type was evaluated using BpS class C. This class provides the shrub cover required by nesting greater sage-grouse. The acreage would increases from 0 acres to approximately 9,400 acres after 10 years, and 37,500 acres after 30 years. At year 30, this would be 98.4% of the entire Low-Elevation Shrub type, resulting in improved nesting/brooding rearing habitat. These acreage figures would be identical to totals for Alternative A. The short-term results would be an increase of approximately 2,200 acres more than alternatives B and C. In the long term, Alternative D would provide approximately 1,100 more acres in BpS class C that Alternative C and approximately 9,700 acres more than Alternative B in BpS class C. Increasing the acreage of the Low-Elevation Shrub type would result in more habitat or higher quality habitat for the greater sage-grouse over the long-term.

In the crested wheatgrass seedings, zero acres would remain in the uncharacteristic class after both 10 and 30 years. This compares to approximately 42,100 uncharacteristic acres in Alternative A, approximately 7,500 uncharacteristic acres in Alternative B, and approximately 40,800 uncharacteristic acres in Alternative C.

In the Mid-Elevation Shrub type, the BpS evaluation class is B. Once again this vegetation type provides nesting habitat for greater sage-grouse and Columbian sharp-tailed grouse. Class B provides 6 – 25% shrub cover. From approximately 40,500 acres in class B, the acreage would increase to approximately 99,800 acres after 10 years. After 30 years, only approximately 51,600 acres would remain in Class B. At year 30, this would be 36.3% of the entire Mid-Elevation Shrub type, resulting in improved nesting/brooding rearing habitat. After 10 years Alternative D would provide approximately 46,800 acres more than Alternative A, approximately 21,400 acres more than Alternative B, and approximately 30,200 acres more than Alternative C in BpS class B. After the 30-year period, Alternative D would provide approximately 1,400 acres less than Alternative A, approximately 10,100 acres more than Alternative B, and approximately 14,200 acres more than Alternative C in BpS class B. The increase of the BpS class B in the Mid-Elevation Shrub type would have an impact on greater sage-grouse by increasing the amount of suitable habitat for nesting and brood rearing.

In the Mountain Shrub type, BpS class B is once again used to evaluate special status fauna habitat. Class B provides the required shrub cover for special status fauna use. Class B would contain approximately 187,000 acres throughout the planning period. Alternatives A, B, C and D would provide the same amount of Mountain Shrub type in BpS class B throughout the planning period. The impact to greater sage-grouse from maintaining the amount of the Mountain Shrub type in Class B would be the same as the other Alternatives.

For the Aspen/Aspen Conifer Mix/Dry Conifer types, the desired BpS class is B. This class provides young aspen required by nesting ruffed grouse and used by mule deer as fawning habitat. At the beginning of the planning period, class B would contain approximately 500 acres, it would increase to approximately 800 acres by year 10 but would decrease to approximately 300 acres by year 30. At year 30, this would be 0.7% of the entire Aspen/Aspen Conifer Mix/Dry Conifer types, resulting in improved nesting/brooding rearing habitat. The short-term acres would be equal for Alternatives A, B, C, and D. The long-term results for Alternative D would be a decrease of approximately 500 acres below Alternative A, and approximately 6600 acres below Alternative B, and approximately 29,000 acres below Alternative C in BpS class B.

Impacts on special status plants would be the same as those identified under Alternative B.

Impacts from Wildland Fire Management Direction: Alternative D would identify the highest number of acres suitable for management treatments (approximately 162,170 acres) compared to Alternatives A, B, and C. The impacts on special status fauna in Alternative D would be similar to those described in Alternative B, except that Alternative D would treat 31% more acres and would allow WFU on 77% more acres than Alternative B.

Approximately 9,500 acres in the Low-Elevation Shrub type, 64,000 acres in the Mid-Elevation Shrub type and 15,000 acres in the Mountain Shrub type would be treated. These treatments would indirectly impact greater sage-grouse by reducing the risk of wildland fire and reconnecting restoration and key habitats for the grouse. These treatments would potentially have short-term impacts on greater sage-grouse resulting from disturbance from these activities (mechanical, chemical, seeding, etc). Vegetation treatments would be subject to mitigation measures to help minimize these impacts. WFU would be allowed on approximately 142,200 acres of key habitat, 149,200 acres of breeding habitat, and 43,200 acres of winter habitat for the greater sage-grouse.

Wildfire suppression priorities would be to protect human health and safety first, and then to minimize risk to the Low-Elevation Shrub type where large fires typically occur. While not specifically directed at protecting greater sage-grouse from fire, protecting the Low-Elevation Shrub vegetation type would indirectly benefit sage-grouse by protecting potential habitat.

Regarding special status plants, Cooper's hymenoxys, Starveling milkvetch, and silky cryptantha habitat could be treated with prescribed fire. The expected effects of wildland fire on special status plants are listed in **Table 4.2.7-4**. Site-specific mitigation or avoidance would be applied to reduce adverse effects of prescribed fire on special status plants.

WFU would be suitable on approximately 124 acres and not appropriate on approximately 214 acres of special status plant habitat, as identified in **Table 4.2.7-11.**

Table 4.2.7-11. Approximate Acres of Special Status Plant Habitat Where WFU Would be Suitable/Not Appropriate on Public Lands Under Alternative D

Special Status Plant Species	WFU	
	Not Appropriate	Suitable
Silky cryptantha/ Starveling milkvetch	143	25
Cooper's hymenoxys	0.0	29
Red glasswort	0.0	2
Red glasswort/ Iodinebush	36	35
Hoary willow	35	32
Alderleaf mountain mahogany	0.0	1
Total	**214**	**124**

Impacts from Lands and Realty Direction: Alternative D would have approximately 121,400 acres in Zone 4. Fifty percent (approximately 60,700 acres) would be expected to leave federal ownership during the planning period. Approximately 590,000 acres would be open for LUA development, and approximately 23,800 acres would be managed as avoidance areas.

Zone 4 would contain approximately 71,300 acres of Colombian sharp-tailed grouse winter range and approximately 14,450 acres of nesting habitat. It would also contain approximately 14,000 acres of key greater sage-grouse habitat. If 50% of each leaves federal ownership, approximately 35,650 acres of Columbian sharp-tailed grouse winter range, approximately 7,200 acres of nesting habitat, and approximately 7,000 acres of key greater sage-grouse habitat would leave federal ownership. Alternative D would dispose of approximately 32,450 acres more winter habitat for Columbian sharp-tailed grouse, approximately 6,350 acres more of nesting habitat, and approximately 5,900 acres more greater sage-grouse key habitat than Alternative A. Alternative D would dispose of approximately 19,950 acres more Columbian sharp-tailed grouse winter habitat, approximately 3,350 acres more nesting habitat, and approximately 3,100 acre more key greater sage-grouse habitat than Alternative B.

Alternative D would dispose of approximately 22,450 acres more Columbian sharp-tailed grouse winter habitat, approximately 3,400 acres more nesting habitat, and approximately 3,100 acres more key greater sage-grouse habitat than Alternative C. Alternative D would allow LUA development on approximately 28,300 acres more than Alternative A, but would be equal to Alternatives B and C in this respect.

The potential impacts on greater sage-grouse would be dependent on the future use of these lands once they are disposed. If they are managed in a similar manner to BLM management (dispersed recreation, etc), the impacts would be similar as under the current management. If management of the disposed of lands changes to allow for more disturbing activities (e.g., gravel pits, mining, agriculture), there would likely be more impacts on greater sage-grouse or its habitat. Since Alternative D would allow for the disposal of more acres than other alternatives, the potential for impacts are greater.

LUAs would require that the holders apply the appropriate management techniques, practices, and guidelines to protect flora and fauna (**Appendix C**). These would help minimize any potential impacts to greater sage-grouse resulting from developments.

Regarding special status plants, habitat would be retained in federal ownership in Zones 1 and 2 and approximately 35 acres of special status plant habitat (e.g., Hoary willow, red glasswort, and alderleaf mountain mahogany) would be maintained. Special status plant habitat in Zones 3 and 4 would be at risk of disposal. There would be approximately 197 acres of special status plant habitat (e.g., silky cryptantha, Starveling milkvetch, and Cooper's hymenoxys) in Zone 3. Habitat on isolated and difficult-to-manage tracts of land would be at the highest risk for disposal in Zone 4. Approximately 79 acres of red glasswort and Iodinebush habitat would be at risk of disposal in Zone 4.

There would be approximately 20 acres of special status plant habitat (e.g., alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha) in the avoidance/exclusion area and approximately 293 acres in the open area for LUAs. Although the annual amount of surface disturbance from LUAs on public lands can vary considerably, on average approximately 164 acres of public land is disturbed. In general, surface-disturbing LUAs would be routed away from special status plant habitat to avoid or prevent loss and degradation of habitat.

Impacts from Livestock Grazing Direction: Approximately 527,800 acres (86% of the planning area) would be available for livestock grazing. The acquired lands in the Soda Springs Hills Management Area would not be available for livestock grazing. Habitat, particularly nesting habitat, would be improved for Columbian sharp-tailed grouse. Livestock grazing would also cease, except for trailing, on the BSD. This should improve riparian habitat along the Blackfoot River and improve habitat for fish. If livestock grazing adjustments would be required to address impacts on special status fauna, they would be accomplished through the BLM's evaluation process to determine whether or not resource objectives are being met.

Impacts to the greater sage-grouse from the livestock grazing direction would be similar to Alternatives B and C. Alternative D would allow for the least amount of grazing so the potential impacts on greater sage-grouse from that use would be the least under this alternative. As with the other alternatives, grazing would be subject to the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a). These guidelines would help limit the potential impacts that grazing would have on greater sage-grouse and their habitat.

Impacts on special status plants would be the same as those identified under Alternative B.

Impacts from Minerals and Energy Direction: Alternative D would also call for coordination with surface management agencies and private landowners on minerals and energy development. Additionally, hydrologic function, integrity, quality, and other surface resource values would be maintained or reestablished from mining-related activities. Minerals and energy activities would be administered to prevent or control sediment and the release of contaminants into the environment in excess of established standards. These activities would be similar to Alternatives B and C and would have a greater impact over Alternative A, where no similar objective is stated.

Fluid Minerals

Alternative D would place an NSO stipulation on approximately 315,300 acres and seasonal restrictions on approximately 226,300 acres. The NSOs would protect habitat in ACECs and RNAs, as well as in riparian and perennial streams.

The seasonal restrictions would decrease disturbance caused by exploration to grouse during nesting season, leking season, and winter (**Tables 4.3.4-2** and **4.3.4-3**). Impacts on habitat from exploration could still happen during a different period of the year. The seasonal restrictions to protect greater sage-grouse and their habitat would cover the same amount of land as Alternative A.

Approximately 261 acres of special status plant habitat (i.e., Cooper's hymenoxys, silky cryptantha, Starveling milkvetch, Iodinebush, and red glasswort) would be open to Fluid Minerals. Although, surface disturbance from Fluid Mineral development could result in loss of individual plants and degradation of habitat, impacts would be avoided and/or reduced through site-specific mitigation (e.g., directional drilling). An NSO stipulation for the Oregon Trail, Fort Hall Irrigation Project and Downey Watershed ACEC would provide protection of approximately 52 acres of special status plant habitat (i.e., Hoary willow, alderleaf mountain mahogany, Starveling milkvetch, and silky cryptantha) from surface disturbance.

Solid Leasable Minerals

Alternative D would allow the leasing of approximately 597,500 acres (97.3% of the planning area) for Solid Leasable Minerals. A nondiscretionary closure for the approximately 11,200 acres of WSAs and discretionary closures of approximately 5,100 acres would protect RNAs and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. These areas have, however, little or no potential for solid leasable mineral development.

It is anticipated that an additional 479 acres of public land surface would be disturbed when mining for phosphate. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 450 acres (94%) of the disturbed acreage would be reclaimed. Twenty-nine acres would not be vegetated and would not provide special status fauna habitat. Impacts on special status flora are not anticipated in the areas where Solid Leasable minerals might be developed.

Any solid leasable mineral development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be assessed through the NEPA process and measures would be implemented to ensure that no unnecessary impacts on sage-grouse or sage-grouse habitat would occur.

Approximately 313 acres of special status plant habitat is open to Solid Leasable Mineral development. However, impacts on special status plants are not expected because none occur in known phosphate lease areas. Avoidance and/or site-specific mitigation would apply to all Solid Leasable Mineral development to prevent or reduce loss of individual special status plants and/or degradation of habitat.

Mineral Materials

Alternative D would allow mineral disposal on approximately 597,500 acres (97.3% of the planning area) for Mineral Materials. A nondiscretionary closure for the approximately 11,200

acres of WSAs and discretionary closures of approximately 5,100 acres would protect RNAs and the portion of the Soda Springs Hills Management Area that was obtained using LWCF/BPA funds. The discretionary closure would serve to protect sensitive fauna such as greater sage-grouse, but no sensitive flora are known to exist within the closure area.

It is anticipated that an additional 333 acres of surface would be disturbed when mining for Mineral Materials. The impacts on special status fauna habitat would be both short (generally exploration activities that are reclaimed) and long term (those areas not reclaimed). Approximately 100 acres (30%) of the disturbed acreage would not be reclaimed. This acreage would not be vegetated and would not provide special status fauna habitat.

Any mineral materials development would be subject to appropriate site specific mitigation measures as conditions of approval. Potential impacts on greater sage-grouse would be assessed through the NEPA process and measures would be implemented to ensure no unnecessary impacts on sage-grouse or sage-grouse habitat would occur.

Impacts on special status plants would be the same as those identified under Alternative B.

Locatable Minerals

Impacts on special status fauna would be the same as those identified under Alternative A.

Impacts from Recreation Direction: In this alternative, lands would be managed for a variety of motorized, non-motorized and mechanical opportunities. A comprehensive approach to travel planning would be developed that would designate all public land in the planning area (approximately 613,800 acres) as either limited/existing (or designated) for OHV or closed for OHV. Alternative D would have 12,700 acres proposed to be closed to OHV travel, which is similar to the other alternatives that range from approximately 1,300 to 12,700 acres. In regards to non-OHV use in Alternative D, impacts would be similar to actions proposed for Alternatives A, B and C.

Alternative D would designate fewer areas as SRMAs than Alternative B or C. As previously discussed, designations of SRMAs would likely result in impacts on greater sage-grouse within those SRMAs since disturbance from human recreation would likely increase. Designation of SRMAs would be likely to attract recreationists from other areas and reduce the impacts of recreation on sage-grouse outside of the SRMAs, which would result in less disturbance outside of SRMAs from recreation. However, Alternative D would designate the same areas as SRMAs as Alternative A and the impacts on greater sage-grouse from SRMA designations would be the same under both of those alternatives. Impacts on special status plants would be the same as those identified under Alternative B.

Impacts from Special Designations Direction: Impacts on special status fauna would be the same as those identified under Alternative A.

Less than 5 acres of alderleaf mountain mahogany habitat would be affected from the management actions of the Downey Watershed ACEC. Management actions (e.g., fire suppression, retention of public lands, avoidance area for LUAs, NSO stipulation for Fluid Minerals, Locatable Minerals withdrawal) designed to maintain the values of the Downey Watershed ACEC would contribute to conserving alderleaf mountain mahogany habitat.

4.2.7.8 Cumulative Impacts

Past, Current and Future Actions - Special Status Fauna: Proposed management decisions combined with other past, present, and reasonably foreseeable actions would produce cumulative impacts on special status fauna found within the planning area.

Mineral development has occurred across this region in the past and would continue into the future. The combined amount of surface disturbance on public, National Forest, State, and private land of these past (approximately 14,984 acres have been disturbed by phosphate mining with almost 20,000 acres by all types of mineral development) as of 2006, present and reasonably foreseeable future actions (approximately 5,252 acres of phosphate mining with over 6,000 total acres projected disturbance on public, state, and private lands from all types of mineral development projected between 2006 and 2025) could have varying degrees of impacts on vegetation types and their representative special status fauna. Other activities, such as road building, would increase access to large tracts of land and could cause impacts on special status fauna that are dependent upon this type of habitat for survival.

The potential for oil and gas is highest in the eastern portion of the planning area, which overlaps with about 16,400 acres of greater sage-grouse winter habitat and about 54,800 acres of breeding habitat. Future development for oil and gas in these areas would result in cumulative impacts on sage-grouse resulting from disturbance to individual grouse, loss of forage, or disturbance of habitat.

The overall cumulative impact of proposed management decisions for all resources and resource uses on special status fauna species is projected to be low at localized areas within the short term. Major contributors to cumulative impacts include: OHV activities throughout most of the planning area; livestock grazing; habitat destruction from minerals and energy development-related activities; some vegetation treatments, such as sagebrush removal and prescribed fire; and possible project developments, such as livestock water developments that result in the redistribution of livestock into previously unused areas which are sensitive to disturbance.

Other impacts may include the loss of animals or fish from minerals and energy, oil- and gas-related development, prescribed fire, or wildland fire. Impacts from habitat fragmentation due to development, changes in OHV use, and rock collection could also occur.

These activities would concentrate livestock grazing pressures and recreation use on vegetation types for some species. The cumulative impacts of all these uses could lead to lower populations of special status fauna in the future.

Two greater sage-grouse planning areas (designated under the Conservation Plan for the greater sage-grouse in Idaho) are located within the planning area. These areas, the Curlew and the East Idaho Uplands, are comprised of a mixture of land ownership patterns. The Curlew SGPA is primarily managed by the BLM (53%) and private owners (30%). The remainder of the Curlew area is 15% Forest Service and 3% State lands. The East Idaho Uplands is primarily private lands (56%), followed by State lands (16%), BLM-administered public lands (15%), Fort Hall Indian Reservation lands (11%), and Bureau of Reclamation lands (2%).

Fragmentation analysis was done on both SGPAs. In the Curlew area, approximately 77% of the area (approximately 367,800 acres) was within six miles of a paved road. Paved roads have been

shown to affect greater sage-grouse use of their habitat six miles on either side of the road (Connelly et al. 2004). Effects include the potential for direct mortality through vehicle strikes, changes in behavior from noise associated with roads, fragmentation of habitat, and an increased incidence of human caused fires along the roads. In the Eastern Idaho Uplands, approximately 23% of the area (approximately 128,200 acres) was within six miles of a road.

For power transmission lines, a three-mile buffer on either side of the line was used. This buffer was used to account for potential influences of avian predation. Other effects power transmission lines would have on greater sage-grouse include habitat fragmentation, collision hazards, and facilitation of the spread of invasive species/noxious weeds. The Curlew area had 14% of the planning area (approximately 67,700 acres) within three miles of a power line and the East Idaho Uplands area had 56% of the unit (approximately 301,600 acres) within three miles of a power line. For the combined linear infrastructure (roads, transmission lines, active railroads, and pipelines), 78% of the Curlew area was within a buffer zone, and 64% of the East Idaho Uplands area was within a buffer zone. Any increase in linear infrastructure in the future would result in cumulative impacts to greater sage-grouse from increased predation, habitat modification, and disturbance to individual sage-grouse.

Between 1990 and 2003, approximately 81,900 acres (21%) of the Curlew area burned in wildland fires and approximately 46,429 acres (9%) of the East Idaho Uplands area burned. In the first 10 years after implementing this RMP, the BLM intends to treat up to 128,300 acres of greater sage-grouse habitat (Alternative D). Assuming the BLM does not treat areas already burned, the total disturbance over the 30-year period would be approximately 256,700 acres, or 25.3% of greater sage-grouse habitat in the two areas. When combined, the fragmentation buffers, the wildland fire areas, and the proposed treatments would cover the majority of the greater sage-grouse areas.

Livestock grazing has historically occurred throughout most of the sagebrush habitat in the planning area. In the past, improper grazing practices have negatively impacted some sage-grouse habitat (Idaho Sage-grouse Advisory Committee 2006). Livestock grazing on public lands has increased approximately 3% from 70,300 AUMs in 1990 to 72,300 AUMs in 2005. Across the entire planning area, which includes other agency, tribal, and private lands, cattle grazing has shown a slight increase while sheep grazing has decreased. All action alternatives would allow for continued grazing in the PFO with a greater emphasis on protection of greater sage-grouse and their habitat.

Idaho BLM policy directs that the 2006 *Conservation Plan for the Greater Sage Grouse in Idaho* will be used as a reference resource to support and guide NEPA analyses and decisions affecting sage-grouse or sage-grouse habitat on BLM-administered public lands. This includes the incorporation of conservation measures identified in the State-wide Plan that would be applied as appropriate for actions authorized, funded or carried out on BLM-administered public lands. The conservation measures would offset impacts to greater sage-grouse from future actions such as grazing, mineral and energy development, disturbance from human activities, and sagebrush steppe habitat changes. The State of Idaho; Idaho Department of Agriculture; Office of the Governor; Office of Species Conservation; BLM; Forest Service; IDFG; Idaho Department of Lands; US Department of Agriculture, Animal and Plant Health Inspection Service - Wildlife Services and Natural Resources Conservation Service, entered into a memorandum of

understanding to work with Local Working Groups and implement the State-wide Plan to the extent possible to protect greater sage-grouse.

Past, Current and Future Actions - Special Status Plants: Monitoring and inventories have occurred on a limited basis in southeastern Idaho, especially on private lands and the Fort Hall Indian Reservation. During inventories and monitoring, voucher collections of special status plants may be made to document newly discovered populations for research purposes. Information gathered from inventories and monitoring would also provide valuable input on ecology, threats, and the viability of special status plants in southeastern Idaho. In general, this information would be used to conserve special status plant habitat. Inventory and monitoring of special status plants would continue to occur on all lands, regardless of ownership, to some degree. **Table 4.2.7-12** summarizes the acres of special status plant habitat by land status identified through inventories across southeastern Idaho. Direct impacts from inventories and monitoring can include collections of voucher specimens and light trampling.

In general, federal land managers in southeastern Idaho would avoid and or mitigate authorized activities (e.g., ROWs, travel management, mining) that adversely affect special status plants. This would contribute to the long-term maintenance of approximately 1,053 acres of special status plant habitat across southeastern Idaho. It is unknown if surface disturbance on approximately 182 acres of special status plant habitat would occur on private/split estate lands.

Table 4.2.7-12. Approximate Acres of Special Status Plant Habitat by Land Status for Southeastern Idaho

Special Status Plant Species	Land Status				
	BLM	USFS	USFWS	Private/ Split Estate	Total
Starveling milkvetch/ silky cryptantha[1]	168	676	0.0	78	922
Iodinebush/red glasswort[1]	76	0.0	0.0	0.0	76
Hoary willow	35	0.0	0.0	23	58
Red glasswort	2	29	17	49	97
Starveling milkvetch	0.0	0.0	0.0	17	17
Silky cryptantha	0.0	21	0.0	15	36
Cooper's hymenoxys	29	0.0	0.0	0.0	29
Alderleaf mountain mahogany	1	0.0	0.0	0.0	1

[1] These species occur together on public lands. Acreage was not separated because this would result in double counting of occupied special status plant habitat acres.

There may be some loss of pollinator species important to silky cryptantha and starveling milkvetch on approximately 697 acres of lands administered by the Forest Service and on approximately 110 acres of privately owned land. Restricted use of pesticides near special status plant habitat on public lands was not enacted until recently. Through restricted use, approximately 2,891 acres (1/4-mile buffer around special status plant habitat) of pollinator habitat on public lands would be maintained. This would contribute to maintaining the reproductive potential of special status plants on approximately 197 acres of special status plant habitat (e.g., silky cryptantha, Starveling milkvetch, and Cooper's hymenoxys). With the exception of iodinebush and red glasswort, grasshoppers and Mormon crickets could feed on

special status plant species. The intensity of feeding on special status plants is unknown. Iodinebush and red glasswort accumulate a high salt concentration and would likely not be targeted by grasshoppers and Mormon crickets. Considering that there is little known about how restricting the use of insect pesticides affects special status plants, use may be modified when new information becomes available.

How past management actions (e.g., revegetation, weed control, prescribed fire, livestock grazing) to improve fish and wildlife habitat have affected special status plants is unknown. With the exception of livestock grazing management, it is unlikely that special status plant habitat has been affected from past management actions to improve fish and wildlife habitat. In general, adjusting livestock grazing management to improve fish and wildlife habitat would also improve special status plants habitat, especially in riparian areas. There would be a higher potential for weed control in riparian areas and special status plants that occupy riparian areas may be affected. Weed treatments could result in short-term loss of individual plants and long-term improvements of habitat through weed attrition. Management actions to improve fish and wildlife habitat would continue.

Revegetation of special status plant habitat in southeastern Idaho has not occurred on public lands, and it is unknown if revegetation has taken place on lands of other ownership. Revegetation projects (e.g., wildfire rehabilitation, mine reclamation) on public lands avoid special status plant habitat. It is unknown if revegetation projects on private lands avoid special status plant habitat. Considering the small amount of special status plant habitat (approximately 182 acres) on private/split estate lands, it is unlikely that special status plant habitat would be revegetated, which could result in the loss of individual plants and increased competition.

In the past, the use of weed-free hay/straw was not required in southeastern Idaho. The use of weed-free hay/straw would be required for authorized BLM activities. Weed-free hay/straw is also required for all uses on Forest Service lands and would not be allowed on the Bear Lake NWR. Increasing public awareness by the BLM, Forest Service, Counties, Tribes, and the State of Idaho concerning the control of invasive species/noxious weeds has the potential to affect special status plants by preventing potential spread into habitat. These activities would continue and, combined, would contribute to long-term maintenance of special status plant habitat across southeastern Idaho.

Weed control on all lands, regardless of ownership, has occurred and is expected to continue. In general weed control on federal lands would likely be designed to minimize damaging effects on non-target species, including special status plants. However, during weed treatment there is potential for individual special status plants to be incidentally killed or damaged from herbicide over spray, to be trampled by control personnel and to be removed manually and mechanically. Weed treatment on private/split estate lands may be less selective and could potentially affect special status plants. However, it is unknown how weed control would affect the approximately 182 acres of special status plant habitat on private/split estate lands.

Livestock grazing has affected special status plant habitat across southeastern Idaho and would continue to affect special status plant habitat. **Table 4.2.7-13** summarizes the number of acres of special status plant habitat available to livestock grazing by land status for each alternative. Livestock grazing has not been allowed on the Bear Lake NWR and would continue to be unavailable. Approximately 17 acres of red glasswort habitat occur on the Bear Lake NWR.

Livestock grazing on the land withdrawal for the Fort Hall Irrigation Project would not be available through the BLM. The BIA permits livestock use of these lands and would be responsible for analyzing environmental consequences of livestock grazing. Approximately 32 acres of Hoary willow habitat occurs on the land withdrawal for the Fort Hall Irrigation Project.

Alderleaf mountain mahogany, Cooper's hymenoxys, silky cryptantha and Starveling milkvetch are susceptible to wildland fire to at least some degree. Wildland fire in special status plant habitat has occurred in the past and continues to occur. Approximately 1,005 acres of special status plant habitat across southeastern Idaho could be affected by wildland fire.

Wildland fire suppression has occurred and would continue to occur in southeastern Idaho. There is potential for suppression activities to affect alderleaf mountain mahogany, Cooper's hymenoxys, silky cryptantha, and Starveling milkvetch considering habitat characteristics. Surface-disturbing suppression activities in special status plant habitat on public lands have not been documented and it is likely that special status plant habitat has been directly affected by fire suppression activities. How suppression activities have affected special status plant habitat on lands of other ownership in southeastern Idaho is unknown. Considering the small acreage of special status plant habitat (approximately 1,005 acres) susceptible to suppression activities, it is unlikely that there would be much, if any, loss of special status plant habitat from future wildland fire suppression activities.

Table 4.2.7-13. Approximate Acres of Special Status Plant Habitat Available To Livestock Grazing by Land Status for Each Alternative

Land Status	Alternative			
	A	**B**	**C**	**D**
BLM	205 I, II, IV, V	205 I, II, IV, V	186 I[1], II, IV,V	205 I,II, IV,V
Private/Split Estate	182 I, V, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII
Forest Service	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII
Total	**1,113**	**1,113**	**1,094**	**1,113**

I = Staveling milkvetch/Silky cryptantha
II = Cooper's hymenoxys
III = Iodinebush/Red glasswort
IV = Red glasswort
V = Alderleaf mountain mahogany
VI = Hoary willow
VII = Staveling milkvetch
VIII = Silky cryptantha

Approximately 19 acres of Starveling milkvetch/silky cryptantha habitat is unavailable in this alternative.

Surface disturbance from minerals and energy development can result in the permanent loss of individual plants and the degradation of habitat. In general, adverse impacts on special status plant habitat from minerals and energy development would be avoided and/or mitigated on federal lands. **Table 4.2.7-14** describes special status plant habitat open to minerals and energy development in southeastern Idaho by alternative.

Phosphate mining is the only expected Solid Leasable Minerals activity that would be developed on public lands in the planning area. Surface disturbance that would result from phosphate mining would occur on known phosphate lease areas on approximately 479 acres of public land. Although special status plant habitat is open to Solid Leasable Minerals development, impacts on special status plants are not expected because none occur in any known phosphate lease areas across southeastern Idaho.

There has not been any known special status plant occurrence in southeastern Idaho affected by Mineral Materials disposals. Although special status plant habitat is open to Mineral Materials development, the potential for development is Low. The most common types of Mineral Materials are sand and gravel. Special status plant habitat is not known to occur in areas with sand and gravel potential, and impacts are not expected. Mineral Materials on private/split-estate lands may, or may not, avoid and/or mitigate adverse impacts on special status plants; and surface disturbances could result in the loss of individuals and the degradation of habitat. However, the potential for Mineral Materials sites to affect special status plants across southeastern Idaho is Low considering that surface disturbances are estimated to occur on approximately 333 acres across southeastern Idaho. Mineral Materials disposals would continue to occur.

Table 4.2.7-14. Approximate Acres of Special Status Plant Habitat by Alternative Across Southeastern Idaho Open to Mineral Resource Development

Land Status	Alternative			
	A	**B**	**C**	**D**
Solid Leasable Minerals				
BLM	312 I, II, III, IV, VI	313 I, II, III, IV, V, VI	313 I, II, III, IV, V, VI	313 I, II, III, IV, V, VI
USFS	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII
Split-estate/ Private	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII
Sub Total	**1,220**	**1,221**	**1,221**	**1,221**
Mineral Materials				
BLM	261 I, II, III, IV[1]	313 (I,II,III,IV,V,VI)	0.0	313 (I,II,III,IV,V,VI)
USFS	726 I, IV, VIII	726 (I,IV,VIII)	726 (I,IV,VIII)	726 (I,IV,VIII)
Split-estate/ Private	182 I, IV, VI, VII, VIII	182 (I,IV,VI,VII,VIII)	182 (I,IV,VI,VII,VIII)	182 (I,IV,VI,VII,VIII)
Sub Total	**1,169**	**1,221**	**908**	**1,221**
Locatable Minerals				
BLM	280 I, II, III, IV	280 I, II, III, IV	280 I, II, III, IV	280 I, II, III, IV
USFS	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII
Split-estate/ Private	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII
Sub Total	**1,188**	**1,188**	**1,188**	**1,188**

Table 4.2.7-15. Approximate Acres of Special Status Plant Habitat by Alternative Across Southeastern Idaho Open to Mineral Resource Development

Land Status	Alternative			
	A	**B**	**C**	**D**
Fluid Minerals				
BLM	261 I[1], II, III, IV	261 I[1], II, III, IV	0.0	261 I[1], II, III, IV
USFS	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII	726 I, IV, VIII
Split-estate/ Private	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII	182 I, IV, VI, VII, VIII
Sub Total	**1,169**	**1,169**	**908**	**1,169**

I = Starveling milkvetch/Silky cryptantha
II = Cooper's hymenoxys
III = Iodinebush/Red glasswort
IV = Red glasswort
V = Alderleaf mountain mahogany
VI = Hoary willow
VII = Staveling milkvetch
VIII = Silky cryptantha

[1] Approximately, 19 acres of Starveling milkvetch/silky cryptantha is closed to Mineral Materials disposals along the Oregon Trail.

There have not been any known special status plant occurrences in southeastern Idaho affected by the development of mining claims.

Considering that there is no known special status plant habitat on public lands with potential for Locatable Minerals development, impacts on special status plants are not expected. Nonetheless, if future Locatable Minerals development activities occur on public lands, site-specific mitigation and/or avoidance of special status plant habitat would be required. Approximately 16 acres of starveling milkvetch, silky cryptantha, and red glasswort would be at risk of Locatable Minerals development on split/estate Lands. It is unknown how special status plant habitat would be affected from surface disturbance if development occurs on private/split estate lands. Approximately 3 acres of Starveling milkvetch and silky cryptantha would be at risk on Forest Service lands. The Caribou Forest Plan provides direction for the avoidance and/or mitigation of surface disturbance in special status plant habitat on lands administered by the Forest Service to reduce or eliminate adverse impacts. The existing Locatable Minerals closures for the Downey Watershed and Fort Hall Irrigation Project withdrawals would provide long-term protection from surface disturbance on approximately 32 acres of special status plant habitat (e.g., Hoary willow and alderleaf mountain mahogany). Approximately 17 acres of red glasswort habitat is withdrawn from Locatable Minerals development on the Bear Lake NWR.

There has not been any known special status plant occurrence in southeastern Idaho affected from leasing Fluid Minerals. However, the potential for oil and gas and geothermal resources in special status plant habitat is identified in **Table 4.2.7-15**. Although 314 acres of public land are anticipated to be impacted by surface disturbance related to leasing Fluid Minerals, it is anticipated that special status species flora habitat can be avoided by directional drilling targets from off-site. Directional drilling can be utilized in most cases where avoidance sites are smaller than 160 - 640 acres; habitat sites shown in **Table 4.2.7-15** typically fall under this size.

Across southeastern Idaho, approximately 1,048 acres of special status plant habitat occurs in areas with High potential for oil and gas resources. Approximately 124 acres of special status

plant habitat occur in an area with Medium oil and gas potential and approximately 37 acres or occur in an area with Low oil and gas potential.

Across southeastern Idaho, approximately 101 acres of special status plant habitat occur in an area with High geothermal resource potential. Approximately 80 acres of special status plant habitat occur in areas with Medium potential, and approximately 1,028 acres occur in areas with Low geothermal potential.

Although surface disturbance from Fluid Minerals development could result in the loss of individual plants and the degradation of habitat, impacts would be avoided and/or reduced through site-specific mitigation (e.g., directional drilling) on BLM and Forest Service lands. It is unlikely that Fluid Minerals would be developed on the Bear Lake NWR, considering that habitat conservation is the primary purpose of the refuge. There are no policies or regulations for Fluid Minerals development on private/split-estate lands to conserve special status plants. Approximately 200 acres of oil and gas and 130 acres of geothermal minerals and energy development are expected across southeastern Idaho.

In the past, special status plant habitat acquisition for conservation purposes has not been a priority. However, if special status plant habitat is acquired by the federal land management agencies for conservation purposes, populations would be managed for long-term sustainability. Acquisition of special status plants habitat for conservation purposes by private individuals or organizations may also occur in southeastern Idaho. Disposal and acquisition of special status plant habitat for purposes besides conservation would be at risk of loss and degradation from surface-disturbing activities.

Table 4.2.7-16. Approximate Acres of Special Status Plant Habitat by Land Status In Areas With Oil and Gas and Geothermal Potential Across Southeastern Idaho

Land Status	Oil & Gas Potential			Geothermal Potential		
Species	High	Medium	Low	High	Medium	Low
Public Lands (BLM)						
Starveling milkvetch/ Silky cryptantha	168	0.0	0.0	0.0	0.0	168
Red glasswort	2	0.0	0.0	0.0	0.0	2
Hoary willow	35	0.0	0.0	32	0.0	3
Red glasswort/iodinebush	0.0	76	0.0	41	35	0.0
Alderleaf mountain mahogany	0.0	1	0.0	0.0	0.0	1
Cooper's hymenoxys	0.0	0.0	29	0.0	0.0	29
Total Public Lands	**205**	**77**	**29**	**73**	**35**	**203**
Private/Split-Estate						
Starveling milkvetch/ Silky cryptantha	78	0.0	0.0	0.0	0.0	78
Red glasswort	2	47	0.0	12	29	8
Hoary willow	23	0.0	0.0	0.0	8	15
Red glasswort/iodinebush	0.0	0.0	0.0	0.0	0.0	0.0
Alderleaf mountain mahogany	0.0	0.0	0.0	0.0	0.0	0.0
Cooper's hymenoxys	0.0	0.0	0.0	0.0	0.0	0.0

Table 4.2.7-16. Approximate Acres of Special Status Plant Habitat by Land Status In Areas With Oil and Gas and Geothermal Potential Across Southeastern Idaho

Land Status Species	Oil & Gas Potential			Geothermal Potential		
	High	Medium	Low	High	Medium	Low
Starveling milkvetch	17	0.0	0.0	0.0	0.0	17
Silky cryptantha	15	0.0	0.0	0.0	0.0	15
Total Private/Split-Estate	**135**	**47**	**0.0**	**12**	**37**	**133**
Forest Service						
Starveling milkvetch/ Silky cryptantha	676	0.0	0.0	0.0	0.0	676
Red glasswort	21	0.0	8	16	8	5
Hoary willow	0.0	0.0	0.0	0.0	0.0	0.0
Red glasswort/iodinebush	0.0	0.0	0.0	0.0	0.0	0.0
Alderleaf mountain mahogany	0.0	0.0	0.0	0.0	0.0	0.0
Cooper's hymenoxys	0.0	0.0	0.0	0.0	0.0	0.0
Starveling milkvetch	0.0	0.0	0.0	0.0	0.0	0.0
Silky cryptantha	21	0.0	0.0	0.0	0.0	21
Total Forest Service	**718**	**0.0**	**8**	**16**	**8**	**702**

Implementation of practices to address travel management (e.g., signs, maps, maintenance, construction, reconstruction, field presence, law enforcement, and education) has occurred throughout southeastern Idaho on all lands, regardless of ownership. Collectively, these practices reduce unauthorized use and/or cross-country travel, which can adversely affect special status plant habitat. Implementation of travel management actions would continue across southeastern Idaho.

OHV use has affected special status plant habitat across southeastern Idaho since the 1970s. Although unauthorized OHV use is expected to occur, adverse impacts on special status plant habitat from surface disturbance would normally be avoided and/or mitigated on federal lands. Surface disturbances associated with OHV use can result in the long-term loss of individual special status plants and/or the degradation of habitat. OHV use on private/split estate lands would be managed by private landowners and the State of Idaho.

Considering there are no policies or regulations to conserve special status plants on private/split estate lands, it is unlikely that adverse impacts from OHV use would be avoided and/or mitigated in special status plant habitat.

Currently, the Downey Watershed ACEC is the only special designation area in southeastern Idaho that provides protection to special status plant habitat from surface disturbances associated with minerals and energy development. Approximately 1 acre of alderleaf mountain mahogany habitat would be protected from surface disturbances associated with Mineral Materials, Locatable Minerals, Solid Leasable Minerals, and Fluid Minerals development. A Locatable Minerals closure remains in effect for the Downy Watershed ACEC.

4.2.7.9 Tribal Treaty Rights and Interests

Special status fauna of cultural significance to the Shoshone-Bannock tribes within the planning area are listed in **Appendix M**. In general, public lands are open to hunting and gathering under treaty rights. Alternative C, with 267,400 acres of priority management for special status species, would provide the best opportunity for hunting or gathering of wildlife species. Alternative D would provide the least opportunity, as this alternative would have the greatest potential to decrease public land base acres, which would lead to a decrease in both Columbian sharp-tailed and greater sage-grouse habitat. Alternative D would also protect a relatively small portion of the planning area from Fluid Minerals development impacts through the use of NSO stipulations.

None of the special status plant species (**Appendix M**) are known to be of cultural significance to the Shoshone-Bannock Tribes. Thus no impacts on tribal treaty rights and interests are expected.

4.2.8 VISUAL RESOURCES

4.2.8.1 Summary

Impacts on Visual Resources would occur from Vegetation (vegetation treatments), Visual Resources (VRM), Wildland Fire Management, Forestry, Lands and Realty, Minerals and Energy, and Recreation.

Common to all alternatives, there would be effects on Visual Resources from Minerals and Energy (the RFDS of Fluid Minerals leasing), but there would be no new effects from the following, resources and resource uses:

- Vegetation
- Visual Resources
- Wildland Fire Management
- Forestry

In Alternative A, there would be no new effects on Visual Resources from lands and realty actions or recreation. The following impacts from these resource use management areas would continue to occur:

a. LUA avoidance and exclusion areas would not include a large Class II area south of Malad City and a smaller Class II cluster around Bear River northeast of Preston. There would continue to be the potential for LUA development in these Class II areas, which contain valuable visual resources.
b. Without OHV use designations, it would continue to be difficult to meet specific VRM class objectives due to the continuation of route pioneering in open and undesignated areas totaling 413,500 acres and the resultant scarring of the terrain from OHV wheels and disturbances to vegetation.

In the action alternatives, B, C, and D, there would be a greater potential for LUA development (**Table 4.2.8-1**), resulting in long-term effects on visual resources from the introduction on human-made structures.

Table 4.2.8-1. LUA Exclusion Areas for each Alternative

Indicator	Alternative			
	A	B	C	D
Acres excluded	30,700	1,900	1,900	0.0
Percent of land excluded	5	3	3	0.0

Long-term effects on visual resources by minerals and energy activities could vary depending on the number of years of disturbance and the extent and intensity of disturbance. These effects would be localized to the area of disturbance.

When comparing alternatives, Alternative C contains the least impacts from motorized recreation to visual resources because all public lands would be designated as limited for motorized and mechanized travel. Alternatives B and D would do the same, but would also allow individual areas with footprints no larger than 80 acres and 320 acres, respectively, to be identified during travel management planning within, which, routes may be designated for intensive motorized uses such as motocross and rock crawling.

4.2.8.2 Methods of Analysis

Indicators. The BLM VRM system consists of a two-stage process: inventory and analysis via contrast rating or analysis. The inventory stage involves identifying the visual resources of an area and assigning them to inventory classes with established objectives, as described in Chapter 3. Establishing VRM objectives is done to ensure that the visual value or scenic quality of the landscape is considered before allowing uses that may have visual impacts. The analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments would meet the management objectives established for an area. The VRM class designations are used as indicators to determine whether actions would be consistent with established objectives for preserving the visual value or scenic quality of the landscape.

Methods and Assumptions. Analysis of Visual Resources management is based on the following assumptions:

- The BLM would continue to cooperate with others in managing public lands in the best interest of the public, thereby continuing to manage visual resources with the aid of VRM class designations and the visual resources contrast rating stage.
- The BLM would update its VRM class designations when necessary.

The four alternatives were reviewed for actions affecting visual resources. The types of effects are described below. In all alternatives, Visual Resources direction would not be affected by Air Quality, Cultural Resources, Soils, Paleontological Resources, Fish and Wildlife, Special Status Species, Livestock Grazing, Water Resources, and Special Designations; so these resources and resource uses are not further addressed under this section.

4.2.8.3 Impacts Common to All Alternatives

Impacts from Vegetation Direction: A vegetation goal in this Plan would be to prevent the establishment of invasive or noxious weed species. This would be done annually by treating these species in the most efficient and effective manner possible in order to decrease or maintain

the total number of occupied acres. The BLM would continue this practice in all of the alternatives, so there would be no new effects on visual resources from these ongoing vegetation actions, and current effects would continue. For example, typically, invasive or noxious weed species are not native; so actions taken to accomplish this objective would continue to have long-term effects in localized areas where the these species are prevented from becoming established. Native vegetation similar to the surrounding native vegetation would thus be encouraged to grow, creating a natural setting appropriate for the local landscape.

Impacts from Visual Resources Direction: The BLM VRM class designations and associated objectives for the classes (as described in Chapter 3) would be maintained in each alternative. As part of the VRM analysis stage and as part of any future project proposal, the visual resources contrast rating process would be completed. The analysis could then be used as a guide for resolving impacts on visual resources from proposed projects. Once every attempt is made to reduce visual impacts, the BLM managers could decide whether to accept or deny project proposals. The BLM managers would also have the option to attach additional mitigation stipulations in order to bring the proposal into compliance with VRM class objectives. Consequently, as a result of maintaining current VRM class designations in each alternative, there would be no new effects on the management of visual resources on public lands.

Impacts from Wildland Fire Management Direction: Fire and nonfire vegetation treatment restrictions would include landscape modifications that (whenever possible) replicate a natural line and that are designed to avoid or hide any vegetation treatments that result in the long-term disruption of natural visual qualities. The BLM would continue this practice in all of the alternatives. Thus there would be no new effects on visual resources from these ongoing wildland fire management actions, and the current effects would continue.

Impacts from Forestry Direction: Forestry vegetation treatment restrictions would include landscape modifications that (whenever possible) replicate a natural line and that are designed to avoid or hide any vegetation treatments that result in the long-term disruption of natural visual qualities. This practice would continue in all of the alternatives.

Impacts from the Reasonably Foreseeable Development Scenarios of Fluid Minerals Direction: Leasing land does not typically involve ground-disturbing activities or any type of construction, so there would be no direct impact on visual resources. Subsequent actions based on the RFDS of Fluid Minerals could result in indirect impacts from leasing. The five phases of the RFDS for oil and gas include preliminary exploration, exploratory drilling, field development, production, and abandonment. Based on the RFDS, these phases would most likely occur in the Bear Lake area, which is dominated by Class III public lands.

The four phases of the RFDS for geothermal resources include exploration, development, production, and closeout. Based on the RFDS, these phases would most likely occur within the American Falls, Idaho Falls, Grays Lake, Georgetown, and Preston areas, which have mostly Class II and III lands and some Class IV lands.

Exploratory drilling, field development, and production for oil and gas, and exploration, development, and production for geothermal resources would gradually increase the number of roads and operations and the number of structures in these areas. These new structures, roads,

and operations could be near areas where expansive vistas are available, where recreation takes place, or where minimal nearby development exists.

The visual resources contrast rating process would be completed as part of any future project proposal. This would involve addressing impacts on scenic vistas, the visual character of a site, and nighttime lighting so that the proposal would be consistent with an area's VRM classification. As a result of the contrast rating process, impacts on visual resources would be mitigated to a degree; but the loss of undisturbed public land would always have an effect.

4.2.8.4 Alternative A

Impacts from Lands and Realty Direction: In Alternative A, LUA exclusion areas (30,700 acres) and withdrawn areas (67,060 acres) would remain the same. Also, the BLM would finalize the withdrawal classification process for seven RNAs, consisting of approximately 1,500 acres. These lands and realty actions and designations that affect visual resources would continue in this alternative. Lands and Realty management direction would not change, so there would be no new effects on visual resources. Additionally, concern for updating avoidance and exclusion areas based on a better understanding of natural resources in the planning area would continue.

Impacts from Minerals and Energy Direction: In order to maintain or reestablish the hydrologic function, integrity, quality, and other surface resource values (including revegetation) of public lands affected by minerals and energy development, measures would be incorporated on a case-by-case basis to reduce visual resources contrasts. Such measures would include the reclamation of disturbed lands to meet VRM objectives to the maximum extent feasible (e.g., mine highwalls, quarry pits, areas where topsoil resources are not available, etc). However, drastically disturbed public lands (e.g., Solid Leasable Minerals) may no longer be able to meet class objectives of landscape form, line, color, and texture. Depending on the number of years of disturbance and the extent and intensity of disturbance from minerals and energy development activities, effects on visual resources could vary. These long-term effects would be localized to the area of disturbance.

Impacts from Recreation Direction: In Alternative A, the BLM would continue to manage public lands according to existing OHV designations (**Figure 2-9**). This alternative essentially recognizes approximately 413,500 acres (or 67% of the planning area) as open to cross-country travel (approximately 61,300 acres are open and 352,200 acres are undesignated). Thus, current effects on visual resources would continue from these ongoing recreation actions. On lands without OHV use designations, it would be difficult to meet specific VRM class objectives. Visual resources on lands without OHV use designations would be impacted by the continuation of route pioneering, resulting in scarring of the terrain from OHV wheels and disturbances to vegetation.

4.2.8.5 Alternative B

Impacts from Lands and Realty Direction: Under Alternative B, the BLM would close 1,900 acres (three percent) of the planning area to LUA development through special designations (e.g., ACECs and RNAs), as opposed to five percent that is closed through special designations under Alternative A (Section 4.3.2, Lands and Realty). Thus, Alternative B may have more

effects on visual resources by allowing more LUA development, which would detract from the natural landscape.

Under Alternative B, the BLM would also withdraw a total of 84,760 acres to mineral entry, an additional 19,200 acres, or three percent, more land than withdrawn under Alternative A. Because mining typically causes more surface disturbance than LUA uses, this would result in fewer long-term and overall effects on visual resources than under Alternative A.

Impacts from Minerals and Energy Direction: In order to maintain or reestablish the hydrologic function, integrity, quality, and other surface resource values (including revegetation) of lands affected by minerals and energy, the BLM would incorporate certain standards and guidelines into minerals and energy activities. One guideline would include reclaiming disturbed lands to meet VRM objectives to the maximum extent feasible. However, for drastically disturbed lands, VRM objectives may not be met because such lands may no longer be able to meet class objectives for landscape form, line, color, and texture. Depending on the number of years of disturbance and the extent and intensity of disturbance from minerals and energy activities, effects on visual resources could vary. These long-term effects would be localized to the area of disturbance.

Impacts from Recreation Direction: The BLM would manage lands for a variety of non-motorized, mechanized, and motorized opportunities with the aid of such management tools as the VRM system. There would be long-term effects on visual resources because non-motorized, mechanized, and motorized recreational opportunities would be designated to areas where those activities would be appropriate to the visual resources of the area.

Snowmobiling would be allowed without restriction in most areas, but areas that would be closed to snowmobiling include WSAs, ACECs, RNAs, Pocatello SRMA, and Soda Springs Hills Management Area, thereby limiting impacts on visual resources in these areas. In addition, the BLM would implement comprehensive travel management planning, using strategies for motorized, mechanized, and non-motorized recreation. Visual resources would be considered within the travel management plans, which would have long-term effects because all public lands not designed as closed would be designated as limited for OHV travel.

4.2.8.6 Alternative C

Impacts from Lands and Realty Direction: Same as Alternative B.

Impacts from Minerals and Energy Direction: Same as Alternative B.

Impacts from Recreation Direction: In Alternative C, the BLM would manage lands for a variety of non-motorized, mechanized, and motorized opportunities, with an emphasis on non-motorized and mechanized opportunities. This would be done with the aid of management tools such as the VRM system. There would be long-term effects on visual resources because non-motorized, mechanized, and motorized recreational opportunities would be designated to areas where those activities would be appropriate to the visual resources of the area.

OHV travel would have the same impacts on visual resources as those in Alternative B.

4.2.8.7 Alternative D

Impacts from Lands and Realty Direction: In Alternative D, the BLM would not close any of the planning area to LUA development. This would have the potential to increase long-term effects on visual resources by allowing more LUA development.

The impacts on visual resources from Lands and Realty management direction with respect to withdrawals would be the same as the effects described in Alternative A.

Impacts from Minerals and Energy Direction: Same as Alternative B.

Impacts from Recreation Direction: The BLM would manage lands for non-motorized, mechanized, and motorized activities in a variety of settings, with an emphasis on motorized activities. This would be done with the aid of such management tools as the VRM system. There would be long-term effects on visual resources because non-motorized, mechanized, and motorized recreational opportunities would be designated to areas where those activities would be appropriate to the visual resources of the area.

In Alternative D, OHV travel would have the same effects on visual resources as those in Alternative B, with one exception. Snowmobiling would be allowed without restriction for most areas including the Pocatello SRMA which is not allowed under Alternatives B and C. Snowmobiling would not be allowed in WSA, ACECs, or RNAs. Compared to Alternatives B and C, Alternative D would allow the greatest impacts on visual resources from motorized recreation. However, Alternative D would allow fewer impacts from motorized recreation than Alternative A, which would include approximately 413,500 acres that would be designated open or undesignated for OHV use.

4.2.8.8 Cumulative Impacts

Past, Current and Future Actions: Visual resources are affected by cumulative activities within, and adjacent to the planning area. Those activities that have occurred, are occurring, and will occur include wildland fires, wildland fire suppression, timber harvesting, mining, OHV use, noxious weed invasion, urban sprawl, and road construction. The BLM cannot entirely prevent some of the activities, such as wildland fires, and has greater control over other activities, such as mining and OHV travel. In the case of minerals and energy activities, not all areas would be expected to be fully reclaimed once mining operations cease, resulting in long-term effects on visual resources.

In some instances, the BLM would need to cooperate with cities and counties to address issues such as urban sprawl. Urban sprawl can cause the public to live ever closer to public lands, which creates challenges to managing visual resources.

4.2.8.9 Tribal Treaty Rights and Interests

Current BLM VRM class designations and associated objectives for the classes (as described in Chapter 3) would be maintained in each alternative. As part of the VRM analysis, a visual resources contrast rating would be completed as part of any future project proposal. The analysis would be used as a guide for resolving impacts on visual resources from proposed projects. Once every attempt is made to reduce visual impacts, the BLM manager could decide whether to

accept or deny project proposals. The BLM manager also has the option of attaching additional mitigation stipulations to bring the proposal into compliance with VRM class objectives. Additionally, the BLM would consult with tribes on projects affecting public lands and would continue to solicit input from tribes on future projects. As a result of maintaining current VRM class designations and conducting a VRM analysis for future proposals, there would be no effects on the management of visual resources valued by the tribe on public lands. Potential visual resources valued by the tribe on public lands include, but are not limited to, sacred sites.

4.2.9 WATER RESOURCES

4.2.9.1 Summary

The primary water resource characteristics that could be impacted by the alternatives are water flows and surface and groundwater quality. Sedimentation, nutrients, temperature, flow alternation, and bacteria are the most common reasons for stream impairment in the planning area. The fragmented land ownership pattern in the region makes it difficult to link the impairments to specific parcels or activities; however, public land actions that could contribute include surface disturbing activities that result in soil compaction, erosion, and vegetation removal in, or adjacent to, water bodies, wetlands, or riparian areas; phosphate mining; energy development; recreation, and the application of herbicides and pesticides near water bodies. Catastrophic wildfires could also impact water quality. Under all alternatives the BLM would continue to cooperate with adjacent landowners and stakeholders to reduce TMDLs in 303(d) listed streams. Of the 892 miles of impaired river segments in the planning area, only 153 miles (17%) occur on public lands, and less than 1% of the acreage of impaired water reservoirs are on public lands. While the BLM manages actions on public lands, they cannot control point and non-point pollution from other lands. Given the highly fragmented land ownership pattern of the region, the potential beneficial impact on water quality is therefore difficult to predict.

All alternatives include BMPs (**Appendix C**) that are designed to reduce the impacts from human activities on water quality. The BMPs range from those designed to reduce or prevent the generation of sediment or chemical constituents at their source, to those designed to contain or treat runoff before it reaches a water body. They would be applied where appropriate to protect water resources when management actions are implemented.

Overall, all Alternatives B, C, and D would provide a level of protection compared to existing conditions because there are more proactive management measures to control sedimentation and other pollutants. **Table 4.2.9-1** compares the major causes of impacts on water resources between alternatives using four indicators for comparison. Alternative A would have the greatest risk of impacts from catastrophic wildland fire because it would emphasize fire suppression, would not identify any acres suitable for WFU, and would identify the fewest number of acres as suitable for fire and nonfire vegetation treatments (less than in Alternative B by a factor of 37, less than in Alternative C by a factor of 16, and less than in Alternative D by a factor of 48). Alternatives B, C, and D would continue to utilize fire suppression, but minimize the risk of catastrophic wildland fire by managing to achieve FRCC 1 and improving LHC to LHC-A so wildland fire would occur less frequently and at a smaller scale. Alternative A would have the greatest risk of impacts from OHV use because it would allow approximately 422,600 acres to be open for OHV use. All other alternatives would reduce impacts by limiting OHV use to designated areas.

Table 4.2.9-1. Comparison of Water Resource Indicators by Alternative

Major Causes of Impacts on Water Resources	Approximate Acres Affected by Alternative			
	A	B	C	D
Fire and nonfire vegetation treatment footprint acres identified	3,400	124,250	54,920	162,170
Acres suitable for WFU	0.0	265,000	212,600	468,900
Acres open to solid leasable minerals (phosphate)	591,200	582,400	582,400	597,500
Acres open to OHV use	422,600	0.0	0.0	0.0

4.2.9.2 Methods of Analysis

Indicators. The following indicators were used to comparatively assess impacts on flows and water quality (e.g., sedimentation, nutrient loading, and temperature):

- Acres of fire and nonfire vegetation treatments.
- Acres suitable for WFU.
- Acres of soil disturbed.
- Acres available for mining solid leasable minerals.
- Changes to PFC by proposed management activities.

Methods and Assumptions. This impact analysis is based on IDT knowledge of resources and the planning area, a literature review, and information provided by other agencies. The analysis is based on the following assumptions:

- The Implementation Plan for the TMDL is expected to improve water quality.
- Management actions would incorporate appropriate BMPs to minimize or eliminate surface runoff impacts on water or surface-disturbing activities, where applicable.
- Surface-disturbing activities, including the compaction of soil or changes in vegetative cover, would increase surface water runoff and downstream sediment loads, thereby degrading water quality.
- The degree of impact attributed to any one disturbance or series of disturbances is influenced by several factors, including location within the watershed, time and degree of disturbance, existing vegetation, and precipitation.
- Water bodies classified as having PFC support stable stream banks and desirable vegetative cover; therefore, their condition is not contributing to sedimentation and they may serve as a filter to control pollutants from adjacent lands.

In all alternatives, Water Resources direction would not be affected by Air Quality, Cultural Resources, Paleontological Resources and Visual Resources so these resources are not further addressed under this section.

4.2.9.3 Impacts Common to All Alternatives

Impacts from Soils Direction: Actions to limit soil erosion, such as reclamation and limiting soil-disturbing activity, would benefit water quality by decreasing sedimentation in adjacent water bodies.

Impacts from Vegetation Direction: Vegetation management practices would maintain the approximately 36 miles of riparian areas found to be in PFC and would improve riparian areas identified as nonfunctioning or functioning at risk to making measurable or observable progress toward PFC. These actions would minimize channel erosion and sediment loading in the PFC reaches. Chemical treatment of noxious weeds in, or adjacent to, water bodies would be conducted in accordance with all label restrictions and recommendations, and to all applicable laws, policies, standards, and guidelines; therefore there would be little to no chemical input into water bodies. Fire and nonfire vegetation treatment activities conducted near water bodies in all alternatives have the potential to increase surface disturbance and erosion rates and would have localized short term impacts on sedimentation to water bodies. Over the long term, the increase in desirable vegetative cover would reduce erosion and sedimentation.

Impacts from Fish and Wildlife Direction: Habitat improvement projects would have a beneficial impact on water quality by providing a desirable vegetative cover which would stabilize soils and reduce sedimentation that could reach water bodies. Improvements to riparian areas would increase shading, helping to control water temperature. In conducting these improvements, any activities in the riparian area or water body would have a short term impact of increasing sedimentation to the water body.

Impacts from Special Status Species Direction: Management actions for special status species that would directly affect water resources include maintaining or improving riparian habitat in the planning area for several special status species, managing the Bear Lake watershed to maintain the habitat quality for Bear Lake endemic fish, and restricting activity along the shoreline of the Snake River. These actions would limit surface disturbance and would maintain or increase the number of river miles that are in PFC; thereby stabilizing soils and increasing the buffer to minimize sedimentation and nutrient loading into the water bodies.

Impacts from Water Resources Direction: Implementation of BMPs, stipulations, Idaho Standards for Rangeland Health, and conducting steam restoration efforts would minimize sedimentation, nutrient loading, and other contamination from future public land uses, while mitigating any current point and non-point pollutant sources. Cooperation with adjacent landowners, state agencies, Tribes, communities, municipalities, other agencies, and other individuals and organizations to meet beneficial use criteria would provide a foundation for a regional strategy to help improve water quality.

Impacts from Wildland Fire Management Direction: Wildland fire direction provides for specific stipulations for fire suppression and vegetation treatments, including establishing buffers for surface disturbing activities and how any chemical treatments would be applied. These stipulations would protect riparian areas and water bodies for the introduction of sedimentation and pollutants. Prescribed fire would have short-term impacts on water quality by reducing canopy and ground cover, thereby exposing soil to wind and water erosion and increased runoff potential. These impacts would affect sediment loading and downstream water quality,

depending on the severity of the fire and location within the watershed. Vegetation treatments would reduce the risk of short-term impacts on water quality from catastrophic wildland fire.

Impacts from Forestry Direction: Harvesting wood products would result in soil compaction from the use of heavy equipment and the removal of vegetation, which would increase the potential for soil erosion, runoff, and sedimentation into water bodies. Likewise, leaks or spills of fuels and oils from equipment would have the potential to be transported into water bodies. Proposed riparian buffer zones and implementation of BMPs set forth in the Idaho Forest Practices Act, Title 38, Chapter 13 and Idaho Code would minimize the amount of any pollutant reaching water bodies.

Impacts from Lands and Realty Direction: Land tenure adjustments would not have any impacts on water resources. Changes in land use that increase surface disturbance would potentially cause localized soil compaction, vegetation removal, and stream bank instability, which could increase erosion and sedimentation loads on streams and rivers. Disposed land would no longer be under BLM jurisdiction and new landowners would have to meet other federal and state laws regarding water resources. The long-term effect is unknown. Changes in land use that provide protection for water resources on public lands could decrease surface disturbance and would reduce impacts on water resources.

Roads in general, and roads on forested lands specifically, are known to load the sediment of streams (Forest Service 2003a; Ketcheson and Megahan 1996). They can often increase sediment loads by one or two orders of magnitude above background rates for the disturbed areas (Furniss et al. 1991). Quantifying the amount of sediment that would be contributed by a road to a given stream channel on a storm, annual, or long-term basis is not possible to do with any degree of certainty. However, construction of roads and ROWs for pipelines, communication sites, and other facilities could be expected to contribute to short- and long-term effects on water bodies due to surface disturbance. Impacts could include short- and long-term run-off from erosion and the removal of vegetative cover until disturbed areas are reclaimed and restored. Once reclamation has been successfully completed, these former road disturbance areas should revert back to natural erosion and sedimentation rates. Though there would be some areas that would remain not reclaimed, their extent and impact is unknown. The sedimentation impacts for roads in the planning area are considered to be localized, and would have short-term durations equal to the life of affecting projects. Implementation of BMPs before, during, and after road construction and maintenance would minimize these impacts.

Impacts from Livestock Grazing Direction: Livestock grazing would be in conformance with the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a), which would ensure moving towards or meeting the standards associated with water quality and the overall health of riparian areas and watersheds. However, livestock grazing would reduce vegetation cover, disturb the surface, and compact soil in areas of concentrated livestock grazing such as salting, watering, and other areas of concentrated livestock use. Livestock grazing could also contribute to nutrient loading in surface runoff in these localized areas.

Impacts from Minerals and Energy Direction: Exploration and development activities relating to minerals and energy resources would require surface disturbance and would have short-term and long-term impacts on water resources. Short-term impacts would include disturbance, soil

compaction, and vegetation removal, which would increase surface runoff and sedimentation, as well as the risk of water quality impacts from spills or leaks of harmful materials, such as fuels and oils used to operate heavy equipment. Long-term impacts would include changes in hydrology or channel morphology from construction and development. Other long-term impacts would include groundwater and surface water contamination from phosphate mining or other mining activities in, or adjacent to, riparian areas or water bodies.

Each of the alternatives would result in similar amounts of surface water and watershed disturbance from mineral and energy development, and these impacts are generally considered to be local, and would have short-term durations limited to the mining periods. In general, the better condition a watershed and its stream channel are in, the more resilient it is to the effects of disturbance.

Within the disturbed areas, where there are pits, overburden storage areas, and the majority of topsoil stockpiles, most precipitation would either infiltrate or be retained in constructed runoff/sediment ponds. Water would evaporate, infiltrate, or in some instances flow off-site. Surface water that does not evaporate or flow off-site could migrate through the groundwater system and ultimately recharge groundwater or surface water in lower elevation streams. Most runoff from these disturbed areas, rather than supplying surface flow to streams, as occurs under the undisturbed condition, would be retained during mining and reclamation.

Except for the possible contribution to stream flow from groundwater-fed springs, these disturbed areas would be withdrawn from the contributing watershed area of a given stream, potentially reducing runoff volumes and peak flows during mining until reclamation is completed and the retention basins are removed.

There is not necessarily always a direct one-to-one correlation between contributing area and runoff peak or volume, but generally the greater the percentage by which the watershed area is reduced, the greater the reduction in flows.

Phosphate mining throughout southeast Idaho has impacted, and continues to impact, surface water quality by contributing various COPCs, primarily selenium.

Overburden from phosphate mining is exposed to surface weathering conditions when it is removed from pits, transported, and placed in overburden disposal sites. The exposure to these conditions can start oxidation of minerals in the overburden that can mobilize soluble forms of various elements contained in the rock. Infiltrating water provides a pathway for the transportation of soluble constituents within the mass of the overburden. Metals, selenium and other constituents that may be mobilized from the overburden through the action of infiltrating water are transported by the water movement to other locations within the overburden deposit and, potentially, to the environment beneath the overburden. Along this pathway, the concentrations of dissolved constituents may subsequently be changed by dissolution, sorption, or precipitation reactions as chemical conditions change along the flow path. The effects of these reactions are difficult to accurately estimate for any overburden fill.

The infiltration rate of water through an overburden fill is quite variable and controlled by the material properties of the overburden fill. The infiltrating water is likely to follow preferential flow paths through the material, accelerating the leaching of overburden along these flow paths

while other material is more slowly leached. The result of this would be an unpredictable pattern of different seepage rates and chemistries across the entire area of overburden.

It is difficult to estimate the final chemistry of water discharged from the bottom of an overburden pile because of the variability and uncertainty in predicting these causal factors. A key consideration in this chemistry is the concentration of soluble COPCs that may be contained in leachate produced in phosphate mine overburden.

In recent years, focus on this issue has resulted in various environmental protection strategies and BMPs to reduce or eliminate such contributions. As such, past or current examples of mining-impacted surface water quality cannot necessarily be cited to predict similar impacts from future mining. These strategies and BMPs have not yet been monitored over any extended period of time, so their effectiveness is expected through general experience to be sufficient at this time.

Implementing the environmental protection strategies and standards described in Chapter 2 should ensure that provisions are made in mine plan designs to reduce impacts from selenium and other contaminants to surface and groundwater. Specific BMP measures and details would be selected and refined at the operations plan review stage and again later by evaluating environmental monitoring data from mineral development operations. Related impacts from the proposed mining on surface water quality should be reduced.

NSO stipulations would protect water bodies, riparian and wetland areas, areas with highly erosive soils, and steep slopes in areas open to Fluid Minerals development. These restrictions would help minimize the direct impacts on water quality. Of the acres open to Fluid Minerals development, NSO restrictions would apply to approximately 314,000 acres (51%) under Alternative A, approximately 226,000 acres (37%) under Alternative B, approximately 347,300 acres (57%) under Alternative C, and approximately 315,300 acres (51%) under Alternative D.

Impacts from the RFDS for Fluid Minerals Direction: The impacts on water resources by Fluid Minerals are discussed in the Minerals and Energy section. NSO restrictions would be applied to protect water bodies, riparian and wetland areas, areas with erosive soils, and steep slopes in areas open to Fluid Minerals development. These restrictions would help minimize the direct impacts on water quality.

Although geothermal energy is classified as green energy, it does have environmental effects. Thermal pollution of waterways may be a direct result of hot water discharge into cold water streams. Additionally, thermal waters may have exceptionally high or low pH and be concentrated with heavy metals or other undesirable elements, relative to ambient surface and groundwater. Conversely, a geothermal feature, especially at the surface, may host a unique species, ecosystem, or microclimate. These microclimates and ecosystems are poorly understood and may merit further study and possible protection.

4.2.9.4 Alternative A

Impacts from Vegetation Direction: Vegetation management actions in Alternative A aimed at increasing forage production for wildlife and livestock include prescribed fire, mechanical treatments, and noxious weed control. Fire- and nonfire-related vegetation treatments (3,400 footprint acres) would have short-term impacts on water quality in some areas, resulting from

surface disturbance and increased rates of erosion and sedimentation. There would be no treatments in Riparian areas and therefore no impact on riparian vegetation types.

Impacts from Wildland Fire Management Direction: In Alternative A, the fewest number of acres would be treated for fire and nonfire vegetation treatments for the purpose of wildland fire management (fewer than Alternative B by a factor of 37, fewer than Alternative C by a factor of 16, and fewer than Alternative D by a factor of 48). It is the only alternative that would not allow WFU. Therefore, Alternative A poses the biggest threat of long-term water quality impacts from large catastrophic wildland fires.

Impacts from Livestock Grazing Direction: Alternative A does not close or eliminate any allotments that contain riparian areas or water bodies. Therefore, under this alternative there is a potential for the transport of soil and nutrients into water bodies, thereby impacting water quality.

Impacts from Minerals and Energy Direction: Under this alternative, approximately 11,200 acres (two percent) of the planning area would be closed to Fluid Mineral Leasing (**Figure 2-8**). As such, water resources in closed areas (WSAs) would not be impacted by Fluid Mineral exploration or development. Alternative A is the only Alternative that would not require implementation of BMPs identified in the current *BMPs for Mining in Idaho* (Idaho Department of Lands), or *Selenium BMP Catalog for Phosphate Mining* (Idaho Mining Association and IDEQ 2004) at the planning level. Implementing these standards, guidelines, and BMPs would avoid or reduce impacts on water resources from mining actions. Alternative A would rely on implementation of BMPs at the point of project permitting.

Impacts from Recreation Direction: Alternative A would allow for unrestricted OHV use on approximately 422,600 acres within the planning area. All other alternatives would limit OHV use to designated areas. Alternative A would affect overall watershed health in the long term by allowing unrestricted OHV use. Recreation and OHV use would have short-term impacts on water quality by causing localized soil compaction, vegetation removal, and stream bank instability, thereby increasing erosion and sedimentation loads to streams and rivers. Recreation activities and OHV use during periods of high soil moisture would accelerate localized erosion and result in vegetation damage in some areas. These impacts would be direct when conducted in, and adjacent to, riparian areas and would be indirect when conducted in other vegetation types.

4.2.9.5 Alternative B

Impacts from Vegetation Direction: Vegetation management objectives in Alternative B would include achieving structure and composition that includes a diverse mix of herbaceous and shrub/woody species with a 15-25% sagebrush canopy cover in the Low-Elevation Shrub and Mid-Elevation Shrub types and at least 25% shrub cover in the Mountain Shrub type. Management would achieve this objective through a combination of fire suppression and pre- and post-fire fire and nonfire vegetation management methods that would focus on stabilizing, restoring, and rehabilitating vegetation resources to improve LHC. Management would also emphasize fire suppression but would make WFU suitable on approximately 91,000 acres of public lands with forested vegetation.

Under Alternative B, vegetation treatments would occur on approximately 124,450 footprint acres, but no acres for treatment would occur in Riparian areas. Impacts on Riparian areas from vegetation treatments would be similar to those impacts described under Alternative A and under Impacts Common to All Alternatives.

Vegetation treatments would focus on stabilizing, restoring, and rehabilitating vegetation resources using chemical and mechanical treatment methods. Fire- and nonfire-related vegetation treatments in tandem with natural successional processes would have short-term impacts on water quality in some areas, resulting from surface disturbance and increased rates of erosion and sedimentation.

Impacts from Wildland Fire Management Direction: Alternative B would have a greater degree of short-term impacts on water quality from wildland fire management actions than in Alternatives A and C because it would treat more acres (37 times more than in Alternative A and 2.3 times more than in Alternative C) with fire and nonfire vegetation treatments. In Alternative C, the acres that would be treated would be less than in Alternative D by a factor of 0.8. Alternative B identifies approximately 265,000 acres as suitable for WFU. Wildland fire would have short-term impacts on water quality by reducing canopy and ground cover, thereby exposing soil to wind and water erosion and increased runoff potential. These impacts would affect sediment loading and downstream water quality, depending on the severity of the fire and location within the watershed. Wildland fire would be allowed in suitable areas to mimic historic fire regimes. Wildland fires would impact water resources in the long term by allowing watersheds to return to historic fire regimes, thus decreasing the risk of impacts on water quality from large, catastrophic fires.

Impacts from Livestock Grazing Direction: Under Alternative B, 13 allotments within the BSD would be closed (5) or eliminated (8). This action would reduce the risk of sedimentation and nutrient loading from livestock grazing into any water bodies within the allotments, including the Blackfoot River, Beaver Creek, Miner Creek, and Womack-Spring Creek.

In addition, and unique to Alternative B, six allotments totaling 320 acres would not be leased for livestock grazing specifically in order to protect riparian areas. This would reduce the risk of introducing sedimentation and nutrients into the water bodies within these allotments and benefit water quality.

Impacts from Minerals and Energy Direction: Water resources potentially impacted by Fluid Mineral development are less under this alternative than under Alternatives A, C, and D because approximately 11,200 acres would be closed and about 258,100 acres would be administratively unavailable for Fluid Mineral Leasing.

This alternative would require implementation of the standards and guidelines outlined in Chapter 2, the BMPs identified in the current *BMPs for Mining in Idaho* (IDL 1992), and *Selenium BMP Catalog for Phosphate Mining* (Idaho Mining Association and IDEQ 2004). Implementing these standards, guidelines, and BMPs would avoid or minimize impacts on water resources from mining actions. Impacts from the RFDS for Fluid Minerals would be the same as described in Alternative A.

Impacts from Recreation Direction: Recreation and OHV use would result in localized soil compaction, vegetation removal, and stream bank instability, thereby increasing erosion and sedimentation loads on streams and rivers. Recreation activities and OHV use during periods of high soil moisture conditions would accelerate localized erosion and would result in vegetation damage in some areas.

Alternative B would restrict OHV use to designated routes only and mechanized travel to designated routes only within SRMAs and WSAs. Comprehensive travel management plans would be developed in Alternative B that would consider criteria such as soil stability and proximity to riparian areas and 303(d)-listed streams. Incorporating these criteria into travel management plans would help minimize impacts on water quality from recreation. Lands would be managed for a variety of nonmotorized, mechanized, and motorized opportunities.

4.2.9.6 Alternative C

Impacts from Vegetation Direction: Vegetation management objectives would be similar to Alternative B by attempting to achieve a diverse mix of herbaceous and shrub/woody species with a 15-25% sagebrush canopy cover in the Low-Elevation Shrub and Mid-Elevation Shrub types and at least 25% shrub cover in the Mountain Shrub type. Naturally occurring Juniper would be maintained in LHC-B with an emphasis on older (greater than 300 years), widely-spaced trees. The difference between Alternatives B and C would be that management would emphasize fire suppression in Source Habitat for greater sage-grouse (Low-Elevation Shrub, Mid-Elevation Shrub, and Mountain Shrub) while allowing for WFU in other areas. Similar to Alternative B, Alternative C would accomplish this by using a combination of pre- and post-fire prescribed fire and nonfire methods, including chemical and mechanical treatments and biological control agents in the Low-Elevation Shrub, Mid-Elevation Shrub, Mountain Shrub, and Juniper types. These methods would be implemented on a larger scale (approximately 34,600 acres) than Alternative A (zero acres), but less than either Alternative B (approximately 111,100 acres), or Alternative D (approximately 141,800 acres) (**Table 4.2.5-2**).

Vegetation management in the forest vegetation types would be similar to management in the Shrub Steppe community, which would emphasize improving LHC by maintaining or increasing the number of acres in LHC-A. Vegetation structure and composition in this community would be the same as Alternative B.

Under Alternative C, vegetation treatments would occur on approximately 54,900 footprint acres, 100 footprint acres of which would occur in Riparian areas.

Fire- and nonfire-related vegetation treatments would have short-term impacts on water quality, resulting possibly from surface disturbance and increased rates of erosion and sedimentation.

Impacts from Wildland Fire Management Direction: Alternative C would have a lesser degree of short-term impacts on water quality from wildland fire management actions than Alternatives B and D because it would treat fewer acres (fewer by a factor of 2.3 in Alternative B and fewer by a factor of 3.0 in Alternative D) with fire and nonfire vegetation treatments. Alternative C would treat 16.2 times more acres than Alternative A. Alternative C would allow WFU on fewer acres than Alternatives B and D (fewer by a factor of 1.2 in Alternative B and

fewer by a factor of 2.2 in Alternative D). The impacts from WFU are discussed in Alternative B.

Impacts from Livestock Grazing Direction: Under Alternative C, 13 allotments within the BSD would be closed (5) or eliminated (8). This action would reduce the risk of sedimentation and nutrient loading from livestock grazing into any water bodies within the allotments.

Impacts from Minerals and Energy Direction: Impacts from the Minerals and Energy Direction would be the same as described in Alternative B.

Impacts from Recreation Direction: Recreation management actions and impacts for Alternative C would be the same as those discussed for Alternative B in that Alternative C would limit OHV use and mechanized travel to designated routes; and comprehensive travel management plans would be developed. However, in Alternative C, recreation management actions would emphasize nonmotorized and mechanized opportunities.

4.2.9.7 Alternative D

Impacts from Vegetation Direction: Vegetation objectives to improve structure and composition would be the same as in Alternatives B and C. Management would emphasize fire suppression as necessary while allowing for WFU. Vegetation management methods would also focus on stabilizing, restoring, and rehabilitating vegetation resources to improve LHC-A. Compared to all other alternatives, vegetation in Alternative D would be treated on the largest scale within the Shrub Steppe community (approximately 141,800 acres)

Forested vegetation management would be similar to management in the Shrub Steppe community, which would emphasize improving the distribution of LHC classes by maintaining or increasing the number of acres in LHC-A. Vegetation structure and composition in this community would the same as described in Alternatives B and C. Stabilizing, restoring, and rehabilitating the forested types would be accomplished by using fire suppression as necessary to protect forested vegetation, but would also rely on utilizing wildland fire, and other pre- and post-fire methods such as prescribed fire and mechanical treatments (e.g., logging) to maintain or improve LHC-A.

Under Alternative D, vegetation treatments would occur on approximately 162,200 footprint acres, 100 footprint acres of which would occur in Riparian areas. Fire- and nonfire-related vegetation treatments would have short-term impacts on water quality resulting possibly from surface disturbance and increased rates of erosion and sedimentation.

Impacts from Wildland Fire Management Direction: Alternative D would treat the greatest number of acres for fire and nonfire vegetation treatments to manage wildland fire (48 times greater than in Alternative A, 1.3 times greater than in Alternative B, and 3 times greater than in Alternative C). Alternative D would allow WFU on the greatest number of acres (1.8 times greater than in Alternative B and 2.2 times greater than in Alternative C. Alternative A does not include WFU). Therefore, Alternative D would have the greatest amount of short-term impacts from surface-disturbing activities but would minimize the risk of long-term water quality impacts from large, catastrophic wildland fires.

Impacts from Livestock Grazing Direction: Same as Alternative C.

Impacts from Minerals and Energy Direction: Impacts from the Minerals and Energy Direction would be the same as described in Alternative B.

Impacts from Recreation Direction: Recreation management actions and impacts for Alternative D would be the same as those discussed for Alternative B in that Alternative C would limit OHV use and mechanized travel to designated routes; and comprehensive travel management plans would be developed. However, in Alternative D, recreation management actions would emphasize motorized opportunities, which would increase the potential for impacts on water resources.

4.2.9.8 Cumulative Impacts

Cumulative impacts on water resources include past, present, and future actions that may affect water quantity and quality in the planning area. The cumulative impacts discussion that follows considers the proposed alternatives in the context of the broader human environment, outside the scope described by the RMP, with the purpose of determining whether any of the alternatives would produce major adverse impacts within the planning area. For the purpose of this impact analysis, the gross land area within the planning area, including Forest Service, Tribal, State of Idaho and private lands are considered.

Past and Current Actions: The primary past actions that affected water resources were human-caused from surface-disturbing and disruptive actions including historic forestry and minerals and energy activities, livestock grazing practices, and recreation. Wildland fires and fire suppression activities have also contributed to the cumulative effects on water resources and related LHC. Surface disturbances have affected only a small percentage of the total area within the planning area. Past grazing practices and fire suppression, however, have been major contributors to current degraded riparian and surface water conditions that occur within the planning area. These conditions have accentuated the need for prompt and effective restoration treatments to reduce the risk of losing watershed values, including further degradation of water quality.

Present actions affecting watershed conditions and ecological health include Wildland Fire Management; Livestock Grazing; Fish and Wildlife; Special Status Species; Soils; Vegetation; Forestry; Lands and Realty land tenure adjustment and ROWs for roads, pipelines and transmission lines; Recreation; and Minerals and Energy development direction. These various actions have been addressed here in Section 4.5.9. Water is also affected by factors largely outside the BLM's management, such as drought conditions, climate change, occurrence of wildland fires, grazing, minerals and energy development, recreation, introduction of invasive species/noxious weeds in conjunction with disturbances on adjacent or nearby Caribou National Forest, Tribal, State of Idaho, and private lands.

The scattered public land pattern with regard to watersheds in the planning area increases the potential for cumulative impacts. Public ownership is rarely continuous along an entire stream length, so habitat conditions and management directions vary and may be quite fragmented. Outside public lands, resource decisions occurring on other lands managed by state and federal agencies would have cumulative effects on all public lands. Private lands present a full spectrum from full resource development and use to resource preservation. Although past and existing activities on private lands are not well known, the assumption is that surface-disturbing and

disruptive activities, such as mineral development and general construction, have occurred and would continue to occur.

Cumulative impacts have occurred from all activities that disturb soil, remove vegetation, and cause soil compaction or channel overland flows, such as road and well pad construction, livestock trampling, and recreational use. Such disturbances have resulted in accelerated soil erosion and runoff, which has increased sediment, salt, and nutrient loads to local channels and lead to channel destabilization.

Discharges of selenium or other contaminants to ground and surface water from phosphate mining would likely continue but at a reduced level as mitigation would be applied to current and new mining (primarily phosphate mine) sites. Mitigation measures would be designed and applied to ensure that water quality standards are met. Monitoring activities would be employed to ascertain the effectiveness of mitigation measures in meeting applicable ground and surface water standards. Previous mine operations in the planning area have apparently affected water quality in some situations as evidenced by observed concentrations of selenium and other contaminants. Future surface and groundwater quality could be affected by the opening of additional areas to phosphate mining.

Future actions: Most of the interrelated actions have individually localized, but cumulatively widespread, effects on watershed function and ecological health, depending on the nature and extent of the disturbances involved. Timber harvesting, livestock grazing, mining activities, ROW, and recreational uses would have a cumulative effect on groundwater and surface water resources. On a short-term basis, all alternatives would tend to be additive to such impacts, but on a long-term basis, the vegetation treatments associated with improvement in the distribution of desirable LHC classes (LHC-A and LHC-B) should more than offset the effects of the interrelated management actions. The expectation of improved conditions, however, could be delayed or reduced by extended periods of drought, major insect infestations, or disease outbreaks. In other cases, insects and disease could help in meeting management goals.

Mining activities within the cumulative impact assessment area associated with all fluid, solid, and Locatable minerals, and Mineral Materials have disturbed about 1,421 of additional public lands. It is projected that these activities would impact another 1,231 acres of public land over the next 20 years. Phosphate mining on federal (National Forest and public lands), state, private, and tribal reservation lands has impacted almost 15,000 acres and is anticipated to impact over 5,000 more acres during the next 20 years. These activities would have the greatest potential to impact groundwater resources by withdrawal for consumptive use or from infiltration from open pits and seepage through overburden disposal fills, which have the potential to affect groundwater quality. With some exceptions, impacts on aquifers would be expected to be of limited extent and in the immediate vicinity of the mine pits and overburden fills. The primary effects would be reductions in flows or the elimination of small, isolated seeps and springs that could have local importance to wildlife and livestock. The development of mines could reduce or eliminate flow at seeps and springs in the immediate vicinity of mine disturbances.

In all alternatives, the trend would be toward an improvement in water quality and riparian areas over the long term through proposed management actions and participation in cooperative watershed planning efforts with other land management agencies and private landowners. On a short-term basis, the primary factors involved would be those that affect the current conditions of

watersheds and constrain the selection of treatments and resultant success for the protection of sites in PFC or the restoration of deteriorated sites. The primary long-term factors include actions that would impact the maintenance and resiliency of sites, such as grazing by livestock.

4.2.9.9 Tribal Treaty Rights and Interests

By exercising tribal treaty rights the size, timing, and type of water resources management could be affected.

Actions proposed for water resources in all of the alternatives could affect those public lands that are of tribal interest. Project-specific analysis would be completed before management activities begin. This would allow for areas of concern to be identified and for interested tribes to be consulted.

However, it is unlikely that such interests would affect the long-term objective to improve water resources and uses because the BLM consults with tribes on projects affecting treaty rights on public lands. The BLM would solicit input from tribes on future projects, which would at least reduce, if not eliminate, the effects of the management of areas with tribal significance on surface and groundwater resources.

4.2.10 WILDLAND FIRE MANAGEMENT

4.2.10.1 Summary

In 30 years all alternatives would contribute to the improvement of FRCC in the Low-Elevation Shrub type. None of the alternatives would improve the FRCC in 30 years for Mid-Elevation Shrub, Juniper or Wet/Cold Conifer. The action alternatives, B, C, and D, would improve FRCC in 30 years in Mountain Shrub, and Alternatives C and D would improve the FRCC in 30 years in the Aspen/Aspen Conifer Mix/Dry Conifer types. **Table 4.2.10-1** shows the change in FRCC in 30 years in each type by alternative.

Table 4.2.10-1. Comparison of Wildland Fire Indicators (FRCC in 30 Years) by Alternative and Vegetation Type

Vegetation Type	Acres	Current FRCC Overall	30-Year FRCC Overall by Alternative			
			A	B	C	D
Low-Elevation Shrub	144,800	2	1	1	1	1
Mid-Elevation Shrub	167,700	2	2	2	2	2
Mountain Shrub	187,100	2	2	1	1	1
Naturally-occurring Juniper	14,400	2	2	2	2	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	3	3	2	2	2
Wet/Cold Conifer	700	2	2	2	2	2

FRCC is determined based on departure from historic conditions for both the vegetation fuel loadings and natural fire return interval (see Chapter 3). **Diagrams 4.2.10-1** through **4.2.10-6** summarizes the effects of the alternatives on departure of both the vegetation fuel loadings and

the fire return interval 30 years after treatment. Because none of the alternatives propose treatments in the Juniper type, a figure for that type is not provided.

Diagram 4.2.10-1: Low-Elevation Shrub, Perennial Grass, and Seedings Types Departure in 30 Years.

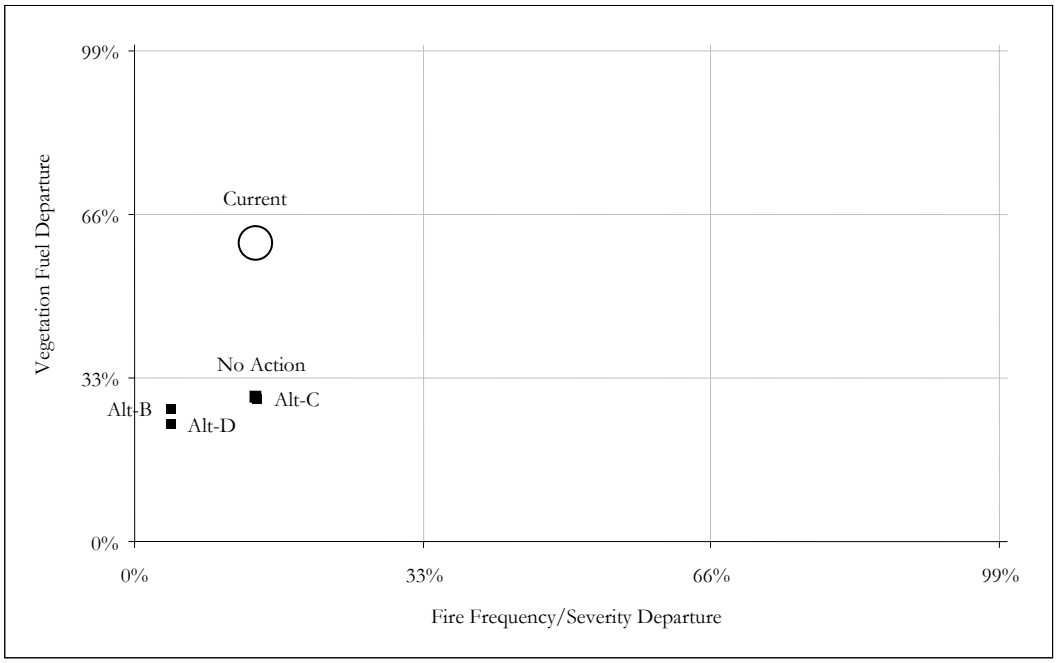


Diagram 4.2.10-2: Mid-Elevation Shrub with Juniper Encroachment Type Departure in 30 Years.

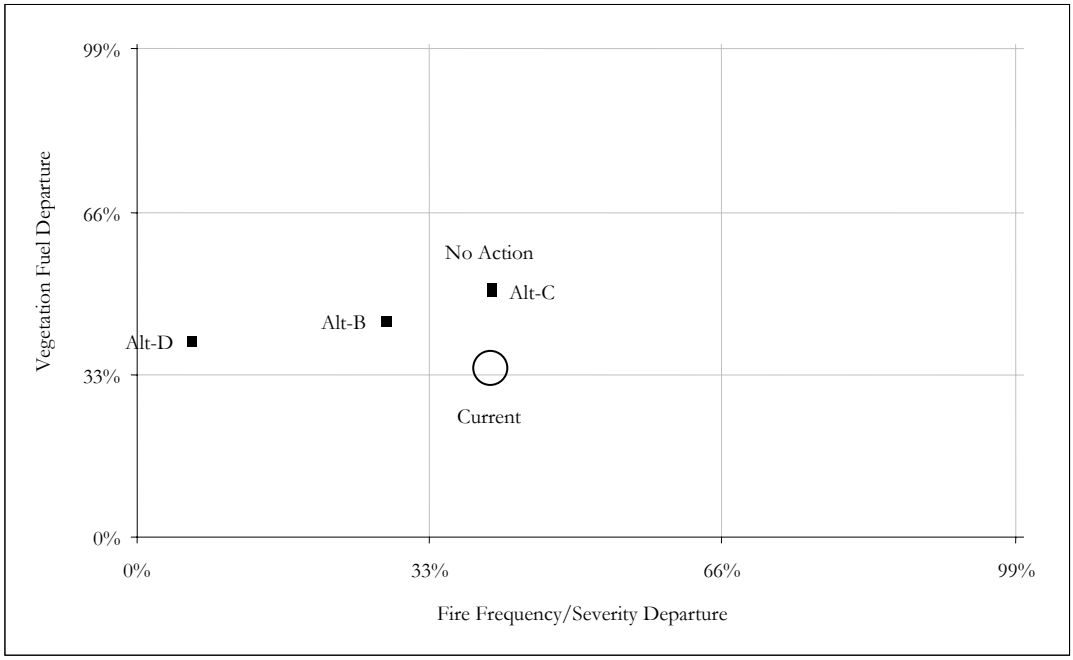


Diagram 4.2.10-3: Mountain Shrub Type Departure in 30 Years.

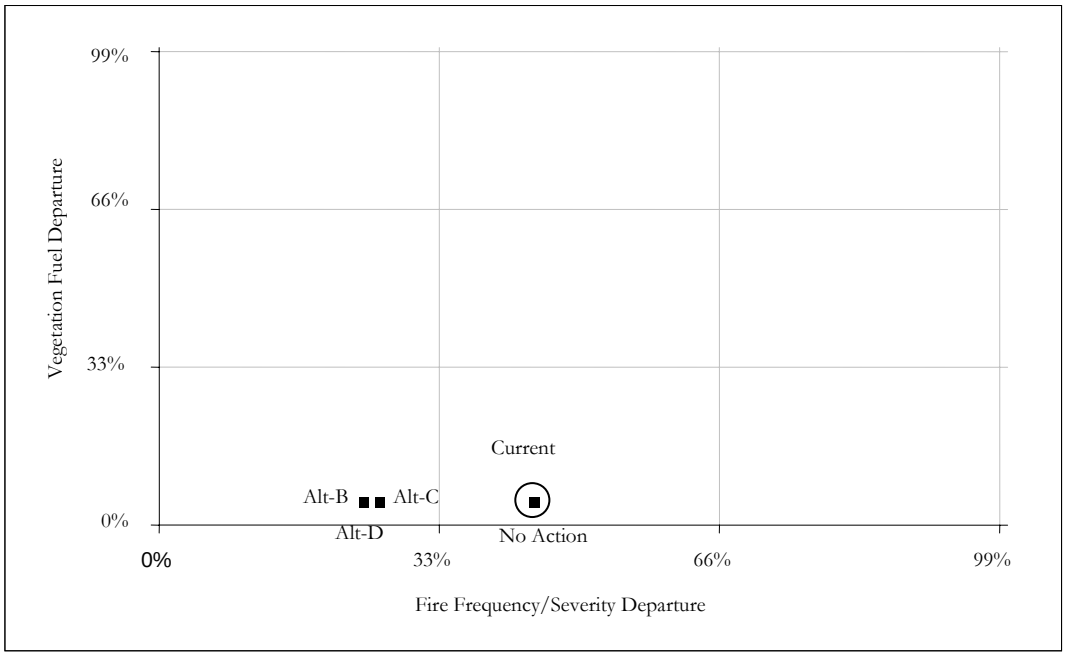


Diagram 4.2.10-4: Aspen/Aspen Conifer Mix/Dry Conifer types Departure in 30 Years.

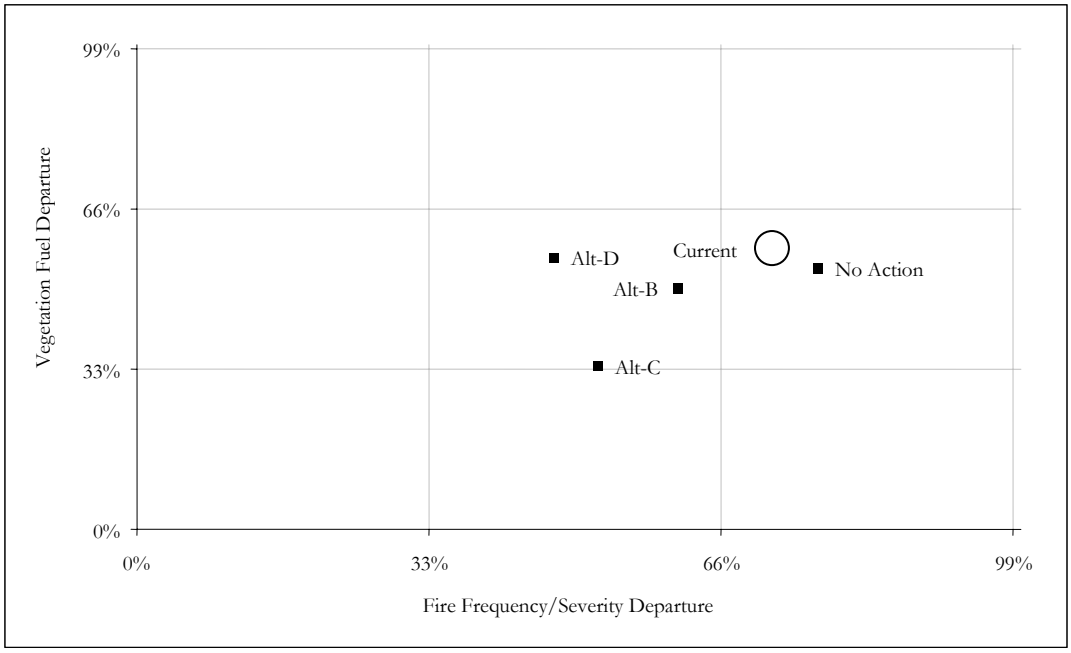


Diagram 4.2.10-5: Wet/Cold Conifer Type Departure in 30 Years.

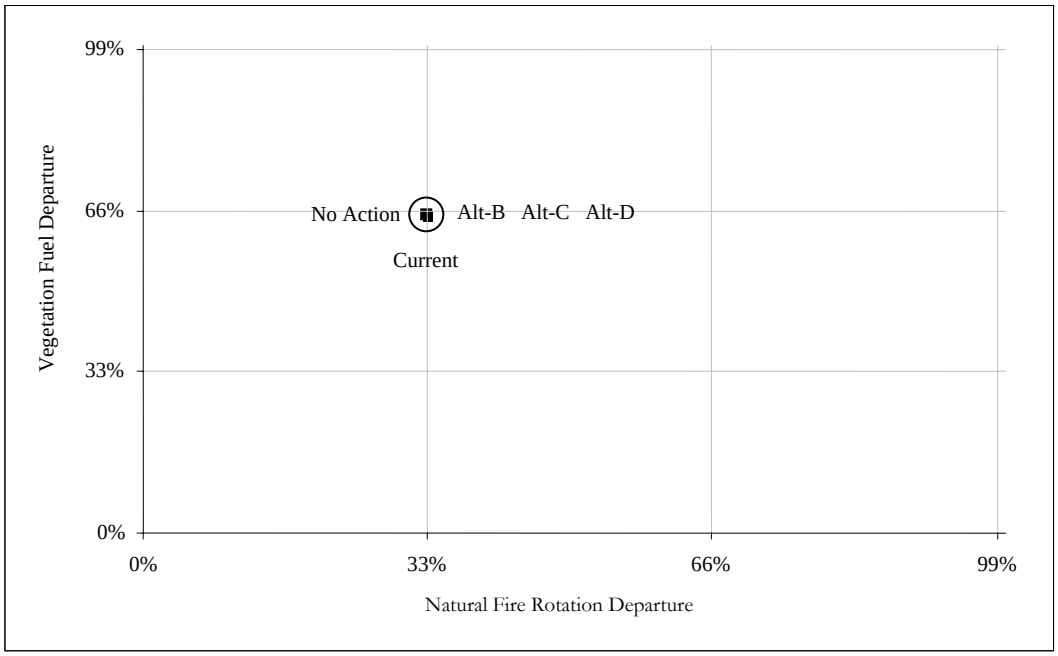
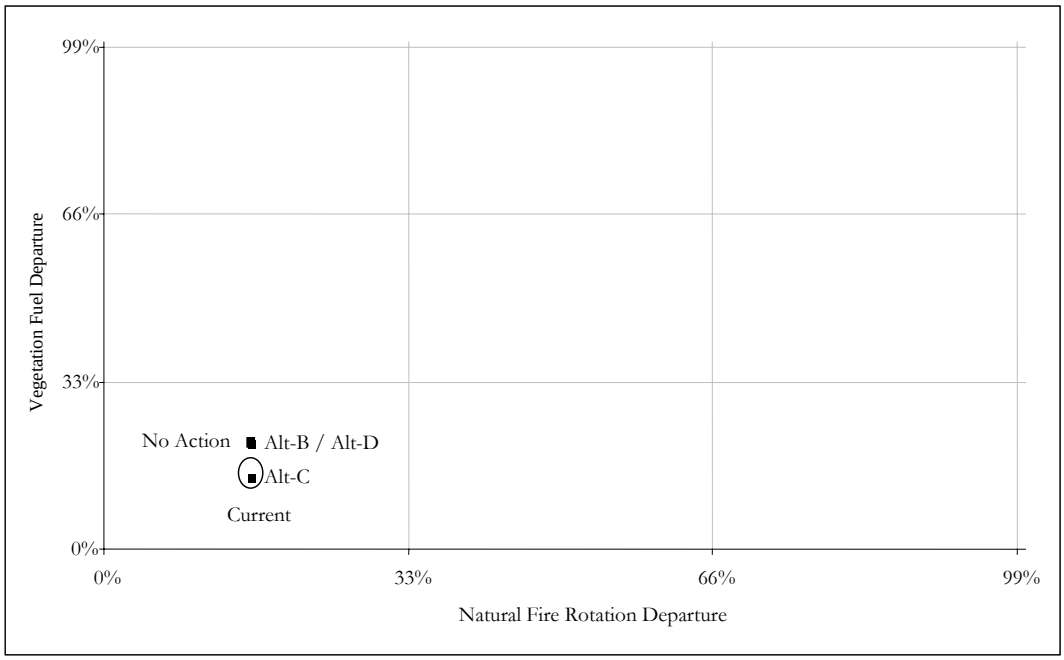


Diagram 4.2.10-6: Other/Vegetated Lava Type Departure in 30 Years.



Implementing proactive fire and nonfire treatments, including WFU, mechanical treatments, prescribed fire and other fuel reduction methods, would help return fire to its natural role in the ecosystem. This could reduce large fire suppression efforts over the long term and could improve public health and firefighter safety.

Land tenure adjustments would improve the efficiency of fire planning and suppression as isolated parcels of public lands are disposed of and the public lands base for the planning area is consolidated.

As **Table 4.2.10-2** shows, risk to public and firefighter health and safety in WUI areas would decrease for Alternatives B, C and D when compared to Alternative A as a result of proposed treatment levels. In Alternatives B and C, risk would be reduced to low for all WUI areas except one respectively, and in Alternative D risk would be reduced to low for all WUI areas.

Table 4.2.10-2. Wildland Urban Interface Area Risk Potential and Treatment Levels by Alternative.

WUI Area	Alternative							
	A		B		C		D	
	Proposed Treatment Acres[1] (10-Year Footprint-Acres)	Relative Potential Risk to Public and Firefighter Health and Safety[2]	Proposed Treatment Acres[1] (10-Year Footprint-Acres)	Relative Potential Risk to Public and Firefighter Health and Safety[2]	Proposed Treatment Acres[1] (10-Year Footprint-Acres)	Relative Potential Risk to Public and Firefighter Health and Safety[2]	Proposed Treatment Acres[1] (10-Year Footprint-Acres)	Relative Potential Risk to Public and Firefighter Health and Safety[2]
Blackfoot River	750	Moderate	1,543	Low	6,433	Low	9,210	Low
Pocatello	250	High	26,217	Low	3,251	Low	10,616	Low
Bear Lake Valley	0.0	Low	1,851	Low	139	Low	1,746	Low
Bear Lake Plateau	0.0	Moderate	0.0	Moderate	8,244	Low	15,801	Low
Soda Springs	200	Moderate	12,029	Low	1,951	Low	4,353	Low
Lava Hot Springs	175	Moderate	7,248	Low	999	Low	4,881	Low
Oneida	100	Moderate	9,253	Low	1,161	Moderate	4,857	Low
Preston/ Malad	0.0	Low	925	Low	139	Low	806	Low
Pleasantview	500	High	30,227	Low	4,180	Low	38,995	Low
Curlew	0.0	Low	18,506	Low	19,508	Low	54,827	Low
Sublette	0.0	High	1,851	Low	279	Low	1,612	Low
Total	1,975		109,650		46,284		147,704	

[1]Includes chemical, mechanical, seeding, and prescribed fire treatments.
[2]Includes the risks associated with unwanted wildland fire over 10 years.

4.2.10.2 Methods of Analysis

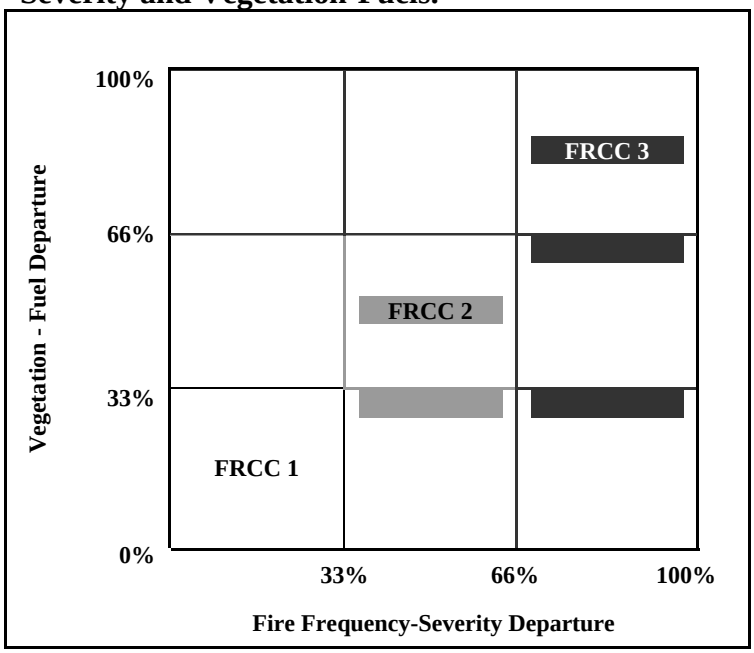
Impact analyses and conclusions are based on IDT knowledge of resources and the planning area, as well as a review of existing literature. Effects are quantified where possible. In the absence of quantitative data, best professional judgment was used.

Indicators

- Change in FRCC by type. In this analysis, FRCC indicates the difference in the percent distribution between the reference and current vegetation class. Vegetation class refers to successional stage: A-Early, B-Mid-Closed, C-Mid-Open, D-Late Open, E-Late Closed, U-Uncharacteristic. The Draft BpS Model determined the reference percent distribution for each type. Current distribution was calculated using a local vegetation model (**Appendix J**). FRCC refers to the departure from historical conditions for vegetation (species composition) and fuels, along with departure from the historic fire return interval and severity.
- Change in Risk/Hazard to WUI described as a reduction or increase.

Diagram 4.2.10-7 illustrates how the two types of departure are used to determine a single FRCC for each type. Departures of 0-to-33% are considered within the historical range of variability (FRCC 1) and are desirable, meaning that wildland fires that occur would display normal fire frequency-severity and vegetation-fuels conditions. Departures of 34-to-100% are considered outside the historical range of variability (FRCC 2 and 3). Moving toward, and achieving, FRCC 1 for each vegetation type is the most desirable condition.

Diagram 4.2.10-7: Graphical Display of FRCC 1, 2 and 3, Representing the Percent Departure from the Historical Range of Variability for Fire Frequency-Severity and Vegetation-Fuels.



Percent departure values within the white area are within the range of historical variability. The shaded area identifies percent departure values outside the range of historical variability.

Methods and Assumptions. Analysis of wildland fire management is based on the following methods and assumptions:

- The effects of 10 years of fire and nonfire treatments are analyzed at 30 years by vegetation type.
- Fire and nonfire treatments would be effective in changing vegetation class.
- Changes in land tenure adjustments and consolidation of public lands would improve efficiency in wildland fire management planning by maintaining or improving access for fire suppression and fire and nonfire treatments.
- The WUI would be treated to improve public and firefighter health and safety, which may not improve FRCC.
- Recreational use would continue to increase.
- The WUI would continue to increase.

- Prescribed fire would be used mainly in the spring and fall.
- All proposed WUI treatments would occur on public lands near communities at risk so that treatments would have a direct and immediate impact on communities at risk.
- Counties and communities at risk would continue to create defensible space and wildland fire-compatible, fire-wise homes and communities so that damage from wildland fires originating on public lands and the risk of wildland fires escaping from private land to public lands are diminished.
- WUI analysis includes risk categories defined as:
    - Low risk (projected high-intensity fire acres of less than or equal to a total of 300 acres in a 10-year period),
    - Moderate risk (projected high-intensity fire acres between a total of 301 and 1,000 acres in a 10-year period), or
    - High risk (projected high-intensity fire acres of greater than a total of 1,000 acres in a 10-year period).

In all alternatives, Wildland Fire Management direction would not be affected by Air Quality, Cultural Resources, Soils, Paleontological Resources, Vegetation, Visual Resources, Water Resources, Minerals and Energy, and Special Designations; so these resources and resource uses are not further addressed under this section.

4.2.10.3 Impacts Common to All Alternatives

Impacts from Vegetation Direction: Proactive fire and nonfire treatments would move vegetation into LHC-A (FRCC 1) by reducing the spread of noxious weeds, increasing the health and distribution of native vegetation adapted to the natural role of fire, and improving vegetation structure and composition directly related to wildland fire return interval, size, severity, and intensity.

Impacts from Fish and Wildlife and Special Status Species Direction: Fish and wildlife management concerns may affect the timing and duration of wildland fire management actions. Restricting activities in the spring and summer to avoid bald eagle nesting sites, big game habitat, or greater sage-grouse habitat can usually be accommodated for wildland fire management.

Impacts from Wildland Fire Management Direction: In general, the consequences of implementing the alternatives would impact WUI areas since they share one main objective to reduce wildland fire risks within WUI areas. Reduced risk results from reducing woody and/or herbaceous fuel loads and maintaining low-risk wildland fire conditions within the vegetation types that are within, and adjacent to, WUI areas. In general, the more treatments a WUI area receives, the lower its long-term risk of experiencing a wildland fire. When prescribed fire is used, there would be some increased risk to public and firefighter health and safety because the treatment uses fire. This risk is short term and much lower than the risks associated with unwanted wildland fire. Mitigation measures and contingency plans would be in place to minimize the risk of an escaped prescribed fire.

Impacts from Forestry Direction: Harvesting timber, gathering firewood, and thinning vegetation would increase ignition source threats, such as that from chainsaws.

Impacts from Lands and Realty Direction: Isolated public lands found within or near private lands would increase the level and complexity of the BLM's involvement in suppressing wildland fires, particularly in the WUI. Land tenure adjustments or easement acquisitions would affect the efficiency of wildland fire management actions and fire suppression response times and strategies.

Impacts from Livestock Grazing Direction: In some situations, grazing could reduce fine fuels and could decrease the capacity for the spread of wildland fires (Zimmerman and Neuenschwander 1984). However, in the long term, the accumulation of larger fuel sources (e.g., shrub vegetation) between fires would increase the potential for larger, more intense wildland fires. Water developments for livestock would provide additional sources of water for fire suppression activities. Livestock trails create fuel breaks if back-burned during fire suppression efforts, which could further aid in the control of wildland fire.

Impacts from Recreation Direction: Increases in public lands use, mainly for recreation and activities associated with the development of adjacent private lands, could affect the need for fire and nonfire treatments, mitigation strategies, education, hazard reduction plans, and wildland fire prevention.

4.2.10.4 Alternative A

Impacts from Wildland Fire Management Direction: Under this alternative, wildland fires would be managed using an AMR (full suppression) that emphasizes initial attack in all vegetation types (**Tables 4.2.5-7** and **4.2.5-10**). ES&R following wildland fire would take place in order to stabilize soils, speed the reestablishment of sagebrush vegetation types and enhance species diversity to minimize invasive species/noxious weeds. Approximately 3,700 acres have burned annually in the last 30 years. Assuming 75% (2,775 acres) of those were in Low- or Mid-Elevation Shrub, and 50 to 75% of those types were rehabilitated, approximately (1,400 to 2,100 acres have been rehabilitated annually in the last 30 years.

Current management direction does not allow the use of WFU on all 613,800 acres of the planning area. Not having WFU available as a tool for resource benefit would reduce managers' flexibility. In the long term, fire suppression activities that reduce the size and intensity of wildland fires would affect frequent fire regime vegetation types (Mid-Elevation Shrub, Mountain Shrub, Aspen/Conifer) by increasing the potential for uncharacteristic larger, more severe, stand-replacing wildland fires.

No treatments would occur in the Low-Elevation Shrub, Perennial Grass, Seedings, Mid-Elevation Shrub, Mountain Shrub, Juniper, Wet/Cold Conifer and Other/Vegetated Lava types. Treatments would continue in the Aspen/Aspen Conifer Mix/Dry Conifer types with the goal of creating a diversity of forest successional stages in the Dry Conifer type and rejuvenating aspen stands. Less than 1% of the acreage in these types would be treated in this alternative in 10 years.

The current FRCC for each type resulting from current wildland fire management direction emphasizes initial attack with minimal proactive treatments. **Table 4.2.10-3** indicates that, with

the exception of Low-Elevation Shrub, the FRCC in 30 years by type would not change from the current FRCC.

Table 4.2.10-3. Change in FRCC in each Vegetation Type Following Treatment for Alternative A

Vegetation Type	Acres	Footprint Treatment Acres	Current FRCC	FRCC 30 Years
Low-Elevation Shrub, Perennial Grass/Seedings	144,800	0.0	2	1
Mid-Elevation Shrub, including juniper encroachment	167,700	0.0	2	2
Mountain Shrub	187,100	0.0	2	2
Juniper	14,400	0.0	2	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	3,400	3	3
Wet/Cold Conifer	700	0.0	2	2
Riparian	6,600	0.0	NA	NA
Other/Vegetated Lava	16,600	0.0	1	1

Low Elevation Shrub (Including perennial grass and seedings)

These three types encompass approximately 144,800 acres, or 24%, of the planning area. In Alternative A, no treatments and short-term impacts are identified in these three types. Overall improvement of the types would occur through natural succession. The current condition of FRCC 2 would change to FRCC 1 in 30 years. In that time, the fire frequency-severity would remain at its current level of 14%, which is also within the range of historical variability (**Diagram 4.2.10-1**). In 30 years, the vegetation composition, structure, and fuels would move into the range of historical variability (29%, compared to 60% currently) resulting from succession and post-wildland fire ES&R activities as necessary.

Mid-Elevation Shrub with Juniper Encroachment

This type encompasses approximately 167,700 acres, or 27% of the planning area. In Alternative A, no treatments and short-term impacts are identified to control juniper encroachment or restore structural diversity. Currently this type is in FRCC 2 (**Diagram 4.2.10-2**). Fire frequency-severity has departed by 40% from historical. Currently, vegetation composition, structure, and fuels are outside the range of historical variability (34%); and in 30 years that would increase to 51% or even farther from the range of historical variability.

Alternative A would promote increases in fuel accumulation, and dominance of old, decadent shrubs, increased juniper densities and conversion of the Mid-Elevation shrub type to more encroached juniper. Increased juniper densities would also increase fire hazard by supporting the potential for uncharacteristic large, intense and severe wildland fires.

Mountain Shrub

This type encompasses approximately 187,100 acres, or 30% of the planning area. In Alternative A, no treatments and short-term impacts are identified to rejuvenate old, decadent shrubs, increase density and cover of desirable herbaceous species, or create a diverse mosaic of successional stages across the landscape. Currently this type is in FRCC 2 (**Diagram 4.2.10-3**). The fire frequency-severity has departed by 44% from historical. Currently, vegetation

composition, structure, and fuels are within the range of historical variability (5%) and in 30 years would remain the same.

FRCC 2 would promote the dominance of old, decadent shrubs, depletion of understory species, and woody fuel buildup. Increased fuel accumulation would increase fire hazard by supporting the potential for uncharacteristic large, intense and severe wildland fires.

Natural Juniper

This type encompasses approximately 14,400 acres, or 2% of the planning area. No treatments are proposed in this type in any alternative.

Currently this type is in FRCC 2 and borders FRCC 3. The fire frequency-severity is beyond the range of historical variability (65%). The vegetation composition, structure, and fuels are beyond the range of historical variability (23%) and in 30 years would not change.

There is uncertainty about the historic fire regime for this type because it can develop over very long timeframes, such as 400 years, without fire disturbance. Fire frequency-severity is close to FRCC 3 due to a disproportionately high percentage of acres in earlier successional stages. Fire frequency-severity is lower in the later successional stages. Continued lack of disturbance in this type would promote the later successional stages, although effects would not be apparent in 30 years.

Aspen/Aspen Conifer Mix/Dry Conifer

These types encompass approximately 90,300 acres, or 15% of the planning area. In Alternative A, approximately 1,800 acres of the Dry Conifer type and 1,600 acres of the Aspen/Aspen Conifer Mix type would be treated over a ten-year period with the goal of rejuvenating aspen stands and creating a diversity of forest successional stages and associated forest structure and species composition. The fewest acres would be treated in this alternative (4%). Long-term effects of treatment would decrease the risk of forest insect/disease outbreaks and subsequent severe wildland fires.

Currently this type is in FRCC 3 (**Diagram 4.2.10-4**). The fire frequency-severity for these two types has departed by 72% from historical. The vegetation composition, structure, and fuels are outside the range of historical variability (58%) and in 30 years would decrease to 54% or move slightly closer to the range of historical variability.

Fire frequency-severity in Alternative A would occur at less than historic rates, promoting fuel buildup. Continued suppression of fire in the Aspen/Aspen Conifer Mix/Dry Conifer types would permit an increase in the conifer component and tree densities and forests with higher rates of insect attacks and disease. Unlike the Aspen/Aspen Conifer Mix type, which has a grass/forb/shrub understory, Dry Conifer forests with a litter understory would pose a greater fire hazard and would burn with stand replacement uncharacteristic severity.

Wet/Cold Conifer

This type encompasses approximately 700 acres, or less than 1% of the planning area. In Alternative A, no treatments and short-term impacts are identified to reduce the risk of insect infestation and disease or to create a diversity of forest successional stages and associated forest structure.

Currently this type is in FRCC 2 (**Diagram 4.2.10-5**). The fire frequency-severity for this type is borderline, but within the range of historical variability (33%). The current vegetation composition, structure, and fuels are beyond the historical range of variability (65%) and in 30 years would remain the same.

The lack of treatments would not affect the current fire frequency-severity or vegetation and fuels structure and composition in 30 years. Wet/cold conifer forests in this condition would have moderate-to-high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate-to-widespread insect and disease outbreaks.

Other/Vegetated Lava

This type encompasses approximately 16,600 acres, or 3% of the planning area. In Alternative A, no treatments and short-term impacts are identified.

This type is currently in FRCC 1 (**Diagram 4.2.10-6**). The fire frequency-severity for this type is expected to be well within the range of historical variability (16%) due to a lack of long-term fire history data. The FRCC is based entirely on the current vegetation composition, structure, and fuels, which is well within the historical range of variability (15%). In 30 years this would increase slightly to 21%, remaining within the range of historical variability.

Wildland Urban Interface

Some WUI areas would have low-to-moderate risk of wildland fire occurrence in Alternative A (**Table 4.2.10-2**) due to high fuel buildup in historically frequent fire regime vegetation types. In those WUI areas where there have been historically high levels of wildland fire and no treatment, fuel loads and wildland fire occurrence would not diminish. Full-scale suppression would continue to be the primary reaction to wildland fires, wildland fire damage to property would continue, financial and labor costs would increase, and the risk to public and firefighter health and safety would increase.

The least number of acres would be treated in this alternative, and several WUI areas would receive no treatments. Communities that border areas with little or no vegetation treatments would experience increased fuel loads. Larger and/or hotter, more intense fires would be seen in these areas, which would increase the risk to public and firefighter health and safety.

Impacts from Lands and Realty Direction: In Alternative A, acquiring 44 miles of ROW and opening 37,300 acres to public recreation would contribute to an increased risk of human-caused wildland fire but would also provide easier access for wildland fire suppression.

4.2.10.5 Alternative B

Impacts from Wildland Fire Management Direction: Tables 4.2.5-16 and **4.2.5-17** identify the range of AMR and treatment methods allowed by vegetation type, with WFU being a suitable treatment method in Mid-Elevation and Mountain Shrub vegetation types. **Table 4.2.10-4** indicates the current and 30-year FRCC in Alternative B.

Table 4.2.10-4. Change in FRCC in each Vegetation Type Following Treatment for Alternative B

Vegetation Type	Acres	Footprint Treatment Acres	Current FRCC	30-Year FRCC
Low-Elevation Shrub, Perennial Grass/Seedings	144,800	69,150	2	1
Mid-Elevation Shrub with juniper encroachment	167,700	25,400	2	2
Mountain Shrub	187,100	16,500	2	1
Juniper	14,400	0.0	2	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	13,200	3	2
Wet/Cold Conifer	700	0.0	2	2
Riparian	6,600	0.0	NA	NA
Other/Vegetated Lava	16,600	0.0	1	1

Low Elevation Shrub (Including perennial grass and seedings)

In Alternative B, 69,150 footprint acres (48%) are identified for treatment Low-Elevation Shrub. The current condition of FRCC 2 would change to FRCC 1in 30 years (**Diagram 4.2.10-1**). In 30 years, the fire frequency-severity would remain within the range of historical variability (4%), reduced from its current level of 14%. In 30 years, the vegetation composition, structure, and fuels would move into the range of historical variability (27%, compared to 60% currently) resulting from succession, targeted treatment, and post-wildland fire ES&R activities, as necessary.

Mid-Elevation Shrub with Juniper Encroachment

In Alternative B, 25,400 footprint acres of treatments are identified in this type. Treatments would control juniper encroachment and would restore structural diversity. Currently this type is in FRCC 2. The fire frequency-severity has departed by 40% from historical. Currently, vegetation composition, structure, and fuels are outside the range of historical variability (34%) (**Diagram 4.2.10-2**). In 30 years, treatments would lessen vegetation departure to 28% but would increase fire frequency-severity to 44% due to succession. Overall, the type would remain in FRCC 2.

FRCC 2 would promote increased fuel accumulation, the dominance of old, decadent shrubs, increased juniper densities, or conversion of Mid-Elevation Shrub to more encroached juniper. Increased juniper densities (encroachment) would also increase wildland fire hazard by supporting the potential for uncharacteristic large, intense and severe wildland fires.

Mountain Shrub

In Alternative B, 16,500 footprint acres are identified for treatment in this type, which would rejuvenate old, decadent shrubs, increase the density and cover of desirable herbaceous species, and create a diverse mosaic of successional stages across the landscape. Currently this type is in FRCC 2 (**Diagram 4.2.10-3**). The fire frequency-severity has departed by 44% from historical and treatments would reduce the departure to 26% in 30 years. Currently, vegetation composition, structure, and fuels are within the range of historical variability (5%) and in 30 years would remain the same. These changes would result in an overall FRCC 1.

Natural Juniper
No treatments are proposed in Alternative B. Effects would be the same as those described in Alternative A.

Aspen/Aspen Conifer Mix/Dry Conifer
In Alternative B, approximately 6,200 acres of the Dry Conifer type and 7,000 acres of the Aspen/Aspen Conifer Mix type (15% of these types combined) would be treated over a ten-year period with the goal of rejuvenating aspen stands and creating a diversity of forest successional stages and associated forest structure and species composition. Relatively few short-term effects would occur. Long-term effects of treatment would decrease the risk to forest insect/disease outbreaks and subsequent severe wildland fires.

Currently this type is in FRCC 3 (**Diagram 4.2.10-4**). The fire frequency-severity for the Aspen/Aspen Conifer Mix/Dry Conifer types is beyond the range of the historical variability (72%). Treatments in this alternative and succession would decrease the departure to 61% in 30 years. The vegetation composition, structure, and fuels are beyond the range of historical variability (58%) and in 30 years would decrease to 50%, slightly closer to the range of historical variability.

Fire frequency-severity beyond the range of historical variability would reduce fuel buildup. Overall, FRCC would be reduced to FRCC 2 in 30 years. Continued suppression of fire in the Aspen/Aspen Conifer Mix/Dry Conifer types would promote an increase in the conifer component, an increase in tree densities, and forests with higher rates of insect attacks and disease. Unlike in the Aspen/Aspen Conifer Mix, which has a grass/forb/shrub understory, Dry Conifer forests with a litter understory would pose a greater fire hazard and would burn with stand replacement severity.

Wet/Cold Conifer
No treatments are proposed in Alternative B. Effects would be the same as those described in Alternative A.

Other/Vegetated Lava
No treatments are proposed in Alternative B. Effects would be the same as those described in Alternative A.

Wildland Urban Interface
Although Alternative B treats the fewest acres of all the action alternatives (**Table 4.2.10-2**), it poses low potential risks to WUI areas which vary depending on historical levels of wildland fire and the amount of treatment proposed. Treatments over time would reduce the incidence of large, high-severity wildland fire by reducing woody and herbaceous fuel loading, reducing fire intensity levels, increasing defensible space, and restoring native vegetation, where feasible.

Impacts from Lands and Realty Direction: In Alternative B, 56,300 acres have been identified as available for disposal, which would result in 34,200 acres (assuming half are actually disposed of) with improved wildland fire management planning and suppression activities on the remaining public lands base of 585,650 acres. Wildland fire management planning and suppression would be improved on public lands by reducing the acres of scattered tracts of mixed ownership.

4.2.10.6 Alternative C

Impacts from Wildland Fire Management Direction: Tables 4.2.5-18 and **4.2.5-19** identify the range of AMR and treatment methods allowed by vegetation type, with WFU restricted in Shrub Steppe types and not allowed in forested vegetation types. **Table 4.2.10-5** indicates the current and 30-year FRCC in Alternative C.

Table 4.2.10-5. Change in FRCC in each Vegetation Type Following Treatment for Alternative C

Vegetation Type	Acres	Footprint Treatment Acres	Current FRCC	30-Year FRCC
Low-Elevation Shrub, Perennial Grass/Seedings	144,800	1,300	2	1
Mid-Elevation Shrub with juniper encroachment	167,700	16,650	2	2
Mountain Shrub	187,100	16,600	2	1
Juniper	14,400	0.0	2	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	20,000	3	2
Wet/Cold Conifer	700	70	2	2
Riparian	6,600	100	NA	NA
Other/Vegetated Lava	16,600	200	1	1

Low Elevation Shrub (Including perennial grass and seedings)
In Alternative C, treatments would be the same as those in Alternative A. Effects would be the same as those described for Alternative A.

Mid-Elevation Shrub with Juniper Encroachment
In Alternative C, 16,650 footprint acres of treatments are identified. Treatments would control juniper encroachment and would restore structural diversity. Currently this type is in FRCC 2. The fire frequency-severity has departed by 40% from historical. Currently, vegetation composition, structure, and fuels are outside the range of historical variability (34%) (**Diagram 4.2.10-2**). In 30 years, treatments would maintain the vegetation departure at 40% but would increase fire frequency-severity to 50% due to succession. Overall, this type would remain in FRCC 2. Results are similar to those for Alternative A.

This type in FRCC 2 would exhibit increases in fuel accumulation, dominance of old decadent shrubs, increased juniper densities, or conversion of Mid-Elevation Shrub to more encroached juniper. Increased juniper densities (encroachment) would also increase fire hazard by supporting the potential for uncharacteristic large, intense and severe wildland fires.

Mountain Shrub
In Alternative C, 16,600 footprint acres are identified for treatment; 100 acres more than in Alternative B. Effects would be the same as those described in Alternative B.

Natural Juniper
No treatments are proposed in Alternative C. Effects would be the same as those described in Alternative A.

Aspen/Aspen Conifer Mix/Dry Conifer

In Alternative C, approximately 20,000 acres of the Dry Conifer type would be treated over a ten-year period, with the goal of creating a diversity of forest successional stages and associated forest structure and species composition (22% of the type). Relatively few short-term effects would occur. Long-term effects of treatment would decrease the risk to forest insect/disease outbreaks and subsequent severe wildland fires.

Currently the Aspen/Aspen Conifer Mix/Dry Conifer types are in FRCC 3 (**Diagram 4.2.10-4**). The fire frequency-severity for these two types is beyond the range of historical variability (72%), and treatments in this alternative along with succession would decrease the departure to 52% in 30 years. The vegetation composition, structure, and fuels are beyond the range of historical variability (58%) and in 30 years would decrease to 34%, slightly closer to the range of historical variability.

Fire frequency-severity beyond the range of historical variability would reduce fuel buildup. Overall FRCC would be reduced to FRCC 2. Dry Conifer forests with a litter understory would be improved and fire hazard would be reduced. However, continued suppression of fire in the Aspen/Aspen Conifer Mix type would promote an increase in the conifer component, an increase in tree densities, and forests with higher rates of insect attacks and disease.

Wet/Cold Conifer

In Alternative C, approximately 70 footprint acres are identified for treatment. Treatments would reduce the risk of insect infestation and disease and would create a diversity of forest successional stages and associated forest structure.

However, modeling indicates that the effect of this alternative on vegetation and fire frequency-severity departure would be the same as that described in Alternative A.

FRCC 2 and the lack of treatments would not affect the current fire frequency-severity or vegetation and fuels structure and composition in 30 years (**Diagram 4.2.10-5**). Wet/Cold Conifer forests in this condition would have moderate-to-high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate-to-widespread insect and disease outbreaks.

Other/Vegetated Lava

In Alternative C, 200 footprint acres are identified for treatment in this type, which is currently in FRCC 1. The fire frequency-severity for this type is expected to be well within the range of historical variability (16%) due to a lack of long-term wildland fire history data. The FRCC is based entirely on the current vegetation composition, structure and fuels, which is well within the historical range of variability (15%) (**Diagram 4.2.10-6**). In 30 years this would be reduced slightly to 14%, remaining within the range of historical variability.

Wildland Urban Interface

The effects in Alternative C are the same as those described for Alternative B (**Table 4.2.10-2)**, but Alternative C would treat 25% more acres in the WUI areas than Alternative B.

Impacts from Lands and Realty Direction: In Alternative C, approximately 49,900 acres were identified in Zone 4 as available for disposal, which would cause approximately 24,950 acres to be disposed (half of the available acres are expected to be disposed) for a reduced public lands

base of approximately 588,850 acres. As a result, wildland fire management planning and suppression would be improved on public lands due to the reduction in acres of scattered tracts of mixed ownership.

4.2.10.7 Alternative D

Impacts from Wildland Fire Management Direction: Tables 4.2.5-20 and **4.2.5-21** identify the range of AMR and treatment methods allowed by vegetation type, with WFU suitable in Mid-Elevation and Mountain Shrub, Aspen/Aspen Dry Conifer/Dry Conifer Mix and Juniper vegetation types. **Table 4.2.10-6** indicates the current and 30-year FRCC in Alternative D.

Table 4.2.10-6. Change in FRCC in each Vegetation Type Following Treatment for Alternative D

Vegetation Type	Acres	Footprint Treatment Acres	Current FRCC	30-Year FRCC
Low-Elevation Shrub, Perennial Grass/Seedings	144,800	62,800	2	1
Mid-Elevation Shrub with juniper encroachment	167,700	64,000	2	2
Mountain Shrub	187,100	15,000	2	1
Juniper	14,400	0.0	2	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	20,000	3	2
Wet/Cold Conifer	700	70	2	2
Riparian	6,600	100	NA	NA
Other/Vegetated Lava	16,600	200	1	1

Low Elevation Shrub (Including perennial grass and seedings)

In Alternative B, 18,950 footprint acres (13%) of the Low-Elevation Shrub type and 69,150 footprint acres (48%), when the Perennial Grass and Seedings types are included, are identified for treatment and would have no short-term impacts. Overall improvement of these types would occur through natural succession. The current condition of FRCC 2 would change to FRCC 1 in 30 years, at which time the fire frequency-severity would remain within the range of historical variability (4%), reduced from its current level of 14% (**Diagram 4.2.10-1**). In 30 years, the vegetation composition, structure, and fuels would move into the range of historical variability (27% compared to 60% currently) as the result of succession, targeted treatment, and post wildland fire ES&R activities, as necessary.

Mid-Elevation Shrub with Juniper Encroachment

In Alternative D, 64,000 footprint acres of treatments are identified. Treatments would control juniper encroachment and would restore composition and structural diversity. Treatments would allow the reintroduction of wildland fire to help control juniper encroachment. Currently this type is in FRCC 2 (**Diagram 4.2.10-2**). The fire frequency-severity has departed by 40% from historical. Alternative D would do the most to restore fire frequency-severity by reducing the departure to 6% in 30 years. Currently, vegetation composition, structure, and fuels are outside the range of historical variability (34%). In 30 years, treatments would increase fire frequency-severity to 40% due to succession, which would cause the overall FRCC to remain in FRCC 2.

This type in FRCC 2 would exhibit increases in fuel accumulation, dominance of old, decadent shrubs, increased juniper densities, or conversion of the Mid-Elevation Shrub type to more encroached juniper. Increased juniper densities (encroachment) would also increase fire hazard by supporting the potential for uncharacteristic large, intense and severe wildland fires.

Mountain Shrub
In Alternative D, 15,000 footprint acres are identified for treatment, which would rejuvenate old, decadent shrubs, increase density and cover of desirable herbaceous species, and create a diverse mosaic of successional stages across the landscape. Currently this type is in FRCC 2 (**Diagram 4.2.10-3**). Modeling indicates that the effects on vegetation composition, structure, and fuels would be the same as those for Alternative C.

Natural Juniper
No treatments are proposed in Alternative D. Effects would be the same as those described in Alternative A.

Aspen/Aspen Conifer Mix/Dry Conifer
In Alternative D, treatments would be the same as those proposed in Alternative C. Effects would be the same as those described in Alternative C.

Wet/Cold Conifer
Treatments are the same as those proposed in Alternative C. Effects would be the same as those described in Alternative C.

Other/Vegetated Lava
No treatments are proposed in Alternative D. Effects would be the same as those described in Alternative A.

Wildland Urban Interface
The effects in Alternative D are the same as those described for Alternative B (**Table 4.2.10-2**), but Alternative D would treat 35% more acres in the WUI areas than Alternative B.

Impacts from Lands and Realty Direction: In Alternative D, 121,400 acres are identified in Zone 4 as available for disposal, which would result in 60,700 acres with improved wildland fire management planning and suppression activities on a public lands base of 553,100 acres. Fire management planning and suppression would improve on public lands by reducing the acres of scattered tracts of mixed ownership.

4.2.10.8 Cumulative Impacts

Past and Current Actions: As described in Chapter 3, past management actions and natural events have altered the condition of vegetation and natural fire regime. These include fire suppression, grazing, timber harvesting, invasive species/noxious weed spread, drought and insect and disease outbreaks.

Future Actions: Wildland fires would continue in all alternatives. Alternative A has no flexibility to manage wildland fires and would require suppression in all circumstances, which would reduce the efficiency of the Wildland Fire Management program. Alternatives C and D

would allow the use of wildland fire in some circumstances, which would increase flexibility and efficiency.

Continued noxious weed infestation would increase the departure and affect FRCC.

Reasonably foreseeable increases in recreation, such as camping and backpacking, could indirectly result in increased wildland fire ignition because of an associated increase in the number of ignition sources, such as campfires and catalytic converters.

Livestock grazing on adjacent lands could move areas further away from historical conditions, or move them closer to historical conditions. Grazing can reduce fine fuels and can reduce grass competition and increase encroachment.

Forest management activities on adjacent lands in the planning area would probably have many of the same objectives as the BLM's DFCs (particularly federal and state land management agencies), which would improve the overall FRCC across the landscape. Management actions in Alternative A would reduce FRCC only in the Low-Elevation Shrub type, so Alternative A would contribute slightly to cumulative impacts on FRCC due to management actions taken by other landowners to reduce FRCC. Alternatives B would have slightly more cumulative effects, because it would reduce FRCC in both the Low-Elevation Shrub and the Mountain Shrub types. Alternatives C and D would have the most cumulative effects, because they would reduce FRCC in the Low-Elevation Shrub, Mountain Shrub, Aspen/Aspen Conifer Mix/Dry Conifer types.

The greatest impact on WUI would be the completion and implementation of Community Wildfire Protection Plans being completed by counties, local stakeholders, and the BLM. Also, the fire planning work undertaken in similar plans include the Interior Columbia Basin Ecosystem Management Project, as well as the Sawtooth, Caribou, and Targhee National Forests Management Plans.

Additionally, the IDL, in conjunction with the BLM and other federal agencies, signed the Idaho Statewide Implementation Strategy for the National Fire Plan. The implementation plan focuses on fire prevention and suppression, hazardous fuels reduction, fire-adapted ecosystems restoration, and the community assistance in wildland fire management (IDL 2002).

Developing risk assessments and mitigation plans would allow counties and communities within the planning area to determine their current fire hazard risk and to develop effective mitigation to minimize risks to people and property in WUI areas. Additionally, implementing community-based fuel reduction programs would provide opportunities for private landowners to work with public land management agencies to manage the WUI. The projects that result from the Idaho Statewide Implementation Strategy could contribute cumulatively to the decrease in fire risks to people and property in the WUI. Also, the community-based fuel reduction programs would help reduce the risk of wildland fires, with associated lessened cumulative impacts on air quality, water quality, wildlife habitat, and soils in the WUI.

Mitigation and Monitoring. The management restrictions listed in Chapter 2, **Table 2-1** through **Table 2-6**, are incorporated into management practices common to all alternatives. These practices would be implemented to avoid adverse impacts on resources from wildland fire suppression and fire and fuels reduction treatments.

4.2.10.9 Tribal Treaty Rights and Interests

Native Americans use numerous flora species for food, religious, cultural, and medicinal reasons, which can be found in the various vegetation types of the planning area. Improving the FRCC would reduce the high-severity effects of wildland fires on those species used by Native Americans. Prescribed fire, WFU, and mechanical and chemical treatments would have short-term effects on the availability and usefulness of the desired species. In the long term, the productivity of those areas used by Native Americans for gathering desired flora would be improved and the risk of loss due to high-severity or stand-replacing wildland fire would be reduced as FRCC is improved. Through consultation with the tribes, wildland fire management activities and treatments would be coordinated with the tribes having a local interest to protect treaty rights in the gathering and use of such flora.

4.3 RESOURCE USES

4.3.1 FORESTRY

4.3.1.1 Summary

Forestry would be affected by the management direction of several programs, and that would vary by alternative. The Wildland Fire Management program would have the greatest affect on the Forestry program through the treatment of acres in commercial and non-commercial forests. VRM and special status species would affect the Forestry program due to their timetables for treatments to improve LHC. Lands and Realty would potentially have the largest impact on the Forestry program if it were to dispose of the maximum amount of commercial or non-commercial forestlands.

Table 4.3.1-1 summarizes how the commercial and non-commercial aspects of the Forestry program would be impacted by management direction from the various resources and uses as described in the alternatives.

4.3.1.2 Methods of Analysis

***Indicators*.** Indicators were developed to help in evaluating impacts from other resources and resource activities on the Forestry program. These indicators center on acres of treatments and how the treatments would affect the probable sale quantity (PSQ) and LHC. The indicators are listed below:

Table 4.3.1-1. Approximate Acres of Commercial and Non Commercial Forestry Program Affected by Management Direction by Alternative

Program	Activity	Alternative			
		A	B	C	D
Commercial Forestry					
Minerals & Energy	High Oil and Gas Potential	6,900	6,900	6,900	6,900
	Medium to High Geothermal Potential	6,500	6,500	6,500	6,500
	Phosphate Leasing	1,670	1,670	1,670	1,670

Table 4.3.1-1. Approximate Acres of Commercial and Non Commercial Forestry Program Affected by Management Direction by Alternative

Program	Activity	Alternative			
		A	B	C	D
Visual Resources Management	Class I	3,400	3,400	3,400	3,400
	Class II	10,500	10,500	10,500	10,500
	Class III	18,300	18,300	18,300	18,300
	Class IV	7,000	7,000	7,000	7,000
Lands and Realty	Land Tenure Adjustments (Zone 4 Disposal)	2,000	3,700	3,700	13,700
Special Status Species	Fauna Priority Areas	0.0	0.0	16,700	0.0
Wildland Fire Management	Treatment Acres	1,200-1,800	1,200-1,800	1,200-1,800	1,200-1,800
	WFU Suitable Areas (acres)	0.0	31,000	6,600	39,700
Non-Commercial Forestry					
Minerals & Energy	High Oil and Gas Potential	10,600	10,600	10,600	10,600
	Medium to High Geothermal Potential	20,200	20,200	20,200	20,200
	Phosphate Leasing	360	360	360	360
Visual Resources Management	Class I	4,500	4,500	4,500	4,500
	Class II	15,300	15,300	15,300	15,300
	Class III	35,500	35,500	35,500	35,500
	Class IV	31,100	31,100	31,100	31,100
Lands and Realty	Land Tenure Adjustments (Zone 4 Disposal)	2,300	8,000	7,000	22,100
Special Status Species	Fauna Priority Areas	0.0	0.0	35,400	0.0
Wildland Fire Management	Treatment Acres Aspen/Conifer/ Dry Conifer	1,600-2,200	11,400-12,000	18,200-18,800	18,200-18,800
	Treatment Acres Wet Cold Conifer	0.0	0.0	70	70
	WFU Suitable Areas (acres)	0.0	50,100	26,700	86,400

- Predicted annual PSQ for the planning area.
- Acres of commercial timber harvesting (by treatment method).
- Acres of forested land treated incidental to fuel/forest health treatments.
- Acres of current and future LHC.

Methods and Assumptions. Several assumptions were also developed to help evaluate the impact from other resources and resource activities on the Forestry program. These assumptions

center on the acres treated and how they relate to the PSQ. Other assumptions relate to how land tenure adjustments of disposal and trade in forested areas would be evaluated. The assumptions are listed below:

- For purposes of estimating acre/volume relationships, 200 acres of selection harvest will result in one MMBF of timber.
- To accomplish the PSQ, timber harvesting would occur on 120-180 acres annually.
- The PSQ would be 600-900 thousand board feet (MBF) and would be lower than what is needed for sustainability.
- The PSQ would be part of the total fuel treatments.
- There would be harvesting outside the PSQ due to insect and disease outbreaks and damage from wildland fire.
- PFO would maintain its current mix of silvicultural and harvesting systems, the same for each alternative.
- Zone 4 of the Land Tenure adjustments would dispose of all forested areas designated for disposal.
- All other zones of Land Tenure adjustments would dispose/obtain an equal amount of forested land.

GIS and vegetation modeling was used mainly to quantify impacts. The "Simple 7" worksheet for FRCC was used to quantify the vegetative component FRCC by vegetation type and resulting LHC classes at 10 and 30 years. Where there was a lack of quantifiable data, professional judgment was used.

In all alternatives, Forestry direction would not be affected by Air Quality, Cultural Resources, Soils, Paleontological Resources, Water Resources, and Recreation so these resources and resource uses are not further addressed under this section.

4.3.1.3 Impacts Common to All Alternatives

Impacts from Fish and Wildlife Direction:

<u>Commercial and Non-Commercial Forestry</u>
By treating aspen through removing encroaching conifer and stimulating aspen clones, forested areas would move closer to historical conditions by creating openings and allowing aspen to regenerate. This would improve the health of the forest and create added protection from wildland fire by using aspen as fire breaks. It would also help reduce the occurrences of insect and disease outbreaks by thinning out the conifers and reducing stress on the remaining trees making them more resilient to attack. Treating these areas would also provide treatment acres in achieving the PSQ.

Meeting the restrictions in **Appendix D** would have the same effect as discussed below in the Special Status Species section.

Impacts from Special Status Species Direction:

Commercial and Non-Commercial Forestry
Implementing the restrictions in **Appendix D** would lengthen the time to accomplish forest vegetation treatments where wildlife habitat occurs. This would delay the time it would take to return the areas to historical conditions of structure and composition. Areas that could normally be treated in one to 2 years would have to be extended out further to meet restrictions, leaving these areas susceptible to wildland fire and insect and disease outbreaks. It would also cause some loss of value in salvage areas affected by insect and disease and wildland fire because trees typically remain salvageable for only 2 years.

This would not prevent the PSQ from being achieved because treatments in other areas outside these habitat areas could be done to meet the PSQ. Also **Appendix D** does not prohibit treatments in these areas it only puts restrictions on time periods of treatments.

Continued protection of the Bowen Canyon Bald Eagle Sanctuary ACEC would forbid commercial timber sales or any post, pole or firewood gathering on approximately 580 acres. Keeping this area closed would not affect the PSQ, because treatments outside these areas would be done to meet the PSQ.

Impacts from Visual Resources Direction:

Commercial and Non-Commercial Forestry
VRM Class I (approximately 11,200 acres) is the most restrictive classification, but only occurs in WSAs where forest treatments are generally prohibited.

VRM Class II (approximately 78,600 acres) allows only low levels of change to the landscape. Of these acres, approximately 25,800 acres occur in commercial and non-commercial forestlands. Vegetation treatments in these areas may be less effective at restoring these areas to historical composition and structure. VRM Class II would not prevent the PSQ goals from being accomplished because acres outside of VRM Class II areas could be treated to meet the PSQ. Restrictions from VRM Class II could lengthen the time needed to return designated areas to historical conditions, due to limitations on the area to be treated, and/or the amount of vegetation that may be removed or altered.

VRM Classes III (approximately 221,000 acres) and IV (approximately 303,000 acres) allow moderate and major changes to the visual landscape, respectively, and, therefore, would not affect forestry.

Impacts from Forestry Direction:

Commercial and Non-Commercial Forestry
Maintaining a PSQ of 600,000-900,000 board feet would keep the Forestry program in the planning area over-sustainable and able offer timber sales on a yearly basis. Because the PSQ factors in other things such as manpower, budget, and economic factors, the PFO could actually offer more timber on a yearly basis and remain sustainable.

Based on the assumptions only 1,200–1,800 acres would be treated within 10 years. That would leave 96-97% of the commercial forest acres untreated. The untreated areas would not move towards historical conditions of structure and composition and would continue to be at risk from insect and disease outbreaks and wildland fire.

Impact from Lands and Realty Direction:

Commercial and Non-Commercial Forestry
In acquiring more access to public lands, forested areas without previous access would become accessible. This would allow forest vegetation treatments to take place. Moving these areas towards historical structure and composition would make them more resilient to insect and disease and damage from wildland fire.

Impacts from Livestock Grazing Direction:

Commercial and Non-Commercial Forestry
By resting areas at least two growing seasons after vegetation treatments, seedlings would be allowed to become established, growing to heights that would be out of reach to livestock. This would limit damage done by browsing on seedlings.

Impacts from Minerals and Energy Direction:

Commercial Forestry
Of the known phosphate leases and lease areas, approximately 1,668 acres occur in commercial timber areas. This is approximately 3% of the total commercial timber base. If these areas were mined they would be permanently lost. This would not have an affect on the PSQ because such a small percentage of the commercial timber base would be lost. Treatments outside of the phosphate lease areas could be done to meet forest management goals.

Non Commercial Forestry
Of the known phosphate leases and lease areas approximately 360 acres occur in non-commercial forest. This is less than 1% of the total amount of non-commercial forest in the planning area. While these acres would be lost from the total amount of non-commercial forest for a significant amount of time, it would not cause a loss in opportunities for collection of Special Forest Products (SFP) and other uses of non-commercial forest because this would be such a small amount of the total land available in the planning area for these uses.

Impacts from the RFDS of Fluid Minerals Direction:

Commercial Forestry
Of the acres that would be available to Fluid Mineral Leasing approximately 13,400 acres of commercial forest, or 29% of commercial timber acres in the planning area, fall within the highest Fluid Mineral potential categories. If these areas were to be selected for development, up to approximately 300 acres of commercial forestland resources could be lost in the short term which would be less than 1% of the total commercial timber base. This would not affect the PSQ as treatments outside these areas could be done to meet forest management goals.

Non Commercial Forestry
Of the acres available to Fluid Mineral Leasing (oil and gas, geothermal) approximately 30,800 acres of non-commercial forest, or about 68% of the total non-commercial forest in the planning area, fall within the highest Fluid Mineral potential categories. If these areas were to be selected for development approximately 300 acres of non-commercial forest could be lost in the short term. This would not cause a loss of opportunities in the collection of SFP and other uses of non-commercial forest because the loss would be less than 1%.

Impacts from Special Designations Direction:

Commercial and Non-Commercial Forestry
Petticoat Peak would continue to be managed as a WSA. This would prevent any forest vegetation treatments from taking place within the approximately 11,200 acres. This restriction would lengthen the time or prevent it from returning to historical structure and composition. The forest would continue to be overstocked and would lack an aspen component. It would also continue to be at risk of insect and disease outbreaks and damage from wildland fire.

The WSA designation would not prevent the PSQ from being achieved because Petticoat Peak is not figured into the commercial timber base. Treatments outside the WSA would be done to meet the PSQ and wildland fire management goals.

4.3.1.4 Alternative A

Impacts from Wildland Fire Management Direction:

Commercial and Non-Commercial Forestry
Currently, the distribution between LHCs in the Aspen/Aspen Conifer Mix/Dry Conifer types is 45% LHC-A (all key ecological components present) and 55% LHC-C (key ecological components absent). In treating approximately 3,200 acres of the Aspen/Aspen Conifer Mix/Dry Conifer types, 1,600 acres in BpS class C (Mid Seral Closed) and approximately 1,600 acres in BpS class E (Late Seral Closed), the health of the forest on those acres would increase in the short term (10 years). Because there would be only a small amount of acres treated in Alternative A, this would cause a shift of acres from LHC-C to LHC-A of only 1% in the short term. In the long term (30 years) more acres would begin to move to LHC-C as natural succession continues creating a distribution of 43% LHC-A and 57% LHC-C. The forest would move further outside its historical range and become more susceptible to insects and disease and wildland fire. There would be no impacts from WFU in Alternative A because there are no acres designated as suitable for WFU.

Impacts from Lands and Realty Direction:

Commercial Forestry
The approximately 32,200 acres that are to be exchanged or sold through land tenure adjustments in Alternative A contain a total of approximately 2,000 acres of commercial timber. If these lands were exchanged or sold a reduction in the commercial timber base of about 4% would be created. A reduction of 4% would not affect the PSQ because areas outside the 4% could be treated to meet the PSQ.

Non Commercial Forestry
Within the approximately 32,200 acres that would be exchanged or sold through land tenure adjustments in Alternative A, 2,300 acres occur in non-commercial forests. If these lands were exchanged or sold it would create a reduction in the non-commercial forests owned by the BLM by approximately 5%. That would create a reduction in lands that would be available for the collection of SFP such as fuel wood, mushrooms, berries, and other uses of non-commercial forest. Because this is such a small percentage of the overall non-commercial forest acreage in the planning area, it would not create a reduction in opportunities for collection of SFP or other uses.

4.3.1.5 Alternative B

Impacts from Vegetation Direction:

Commercial and Non-Commercial Forestry
By treating the Aspen/Aspen Conifer Mix/Dry Conifer types to achieve a 40/40/20 mix there would be a movement towards a more historical composition and structure. This would improve the overall health of the forest making it more resilient to insects and disease and damage from wildland fire.

The 40/40/20 mix would also allow the forest to continue to meet forest vegetation management goals and the PSQ into the future.

By focusing on treatments that would move the Wet/Cold Conifer on public lands towards historical conditions, the overall health of the forest would improve and become more resilient to insects and disease and damage from wildland fire.

Impacts from Wildland Fire Management Direction:

Commercial and Non-Commercial Forestry
Currently, the distribution between LHCs in the Aspen/Aspen Conifer Mix/Dry Conifer is 45% LHC-A (all key ecological components present) and 55% LHC-C (key ecological components absent). In Alternative B there would be treatment of approximately 13,200 acres in the Aspen/Aspen Conifer Mix/Dry Conifer type, 6,600 acres in BpS class C (Mid Seral Closed) and approximately 6,600 acres in BpS class E (Late Seral Closed). This would create a 6% shift in the total acres from LHC-C to LHC-A increasing the health of the forest on those acres and moving it closer to historical conditions in the short term (10 years).

In the long term (30 years) as natural succession continues, 4% of the total acres would move back from LHC-A to LHC-C. This would leave a 2% improvement over current LHCs. The forest health would be improved slightly, but the majority would remain in LHC-C and be more susceptible to insect and disease outbreaks and wildland fire.

Commercial Forestry
In Alternative B there are approximately 31,000 acres of commercial timber designated as suitable for WFU. This would have an impact on the PSQ as nearly 77% of the commercial timber would be available for WFU. The amount of timber harvested could be increased due to

salvage operations that would utilize the areas burned. Also this could reduce the number of acres of commercial timber available for harvesting in future projects.

Non Commercial Forestry
In Alternative B there are approximately 50,000 acres of non-commercial timber suitable for WFU. This could have a short-term affect on the SFP as approximately 58% of all the non-commercial areas would be available. Areas where WFU is implemented would become unavailable for collection of SFP until the vegetation that provides the products returns.

Impacts from Lands and Realty Direction:

Commercial Forestry
There are approximately 56,300 acres identified for disposal (Zone 4) in Alternative B. Of these acres, approximately 3,700 acres contain commercial timber. This is approximately 8% of the total commercial timber base. The BLM would be compensated at appraised market value for any timber that was on the lands disposed. This would not affect the PSQ because treatments outside of the 8% would be done to meet the PSQ.

Non Commercial Forestry
Within the 56,300 acres that are identified for disposal (Zone 4) in Alternative B approximately 8,000 acres contain non-commercial forest. This would cause a reduction of non-commercial forest in the planning area by about 17%. This would create a reduction in the amount of land that would be available for the collection of SFP such as fuel wood, mushrooms, and berries. Because this is such a small percentage of the overall non-commercial forest in the planning area, it would not create a reduction in opportunities for collection of SFP or other uses of non-commercial forest.

4.3.1.6 Alternative C

Impacts from Vegetation Direction:

Commercial and Non-Commercial Forestry
By treating the Aspen/Aspen Conifer Mix/Dry Conifer types to achieve a 40/40/20 mix, there would be a movement towards a more historical composition and structure. This would be the same mix as in Alternative B, however there would be more acres treated in Alternative C to accelerate the establishment of aspen. This would improve the overall health of the forest, making it more resilient to insects and disease and damage from wildland fire.

The 40/40/20 mix would also allow the forest to continue to meet forest vegetation management goals and the PSQ.

By focusing on treatments that would move the Wet/Cold Conifer type on public lands towards historical conditions, the overall health of the forest would increase and become more resilient to insects and disease and damage from wildland fire.

Commercial Forestry
In Alternative C there are approximately 6,600 acres of commercial timber designated as suitable for WFU. This would have little impact on the PSQ as only 16% of the commercial timber would

be available for WFU. Areas outside of the WFU lands would be used to meet forestry goals and the PSQ.

Non-Commercial Forestry

In Alternative C there are approximately 26,700 acres of non-commercial timber suitable for WFU. This could have a short-term affect on the SFP as approximately 31% of all the non-commercial areas would be available. Areas where WFU is implemented would become unavailable for collection of SFP until the vegetation that provides the products returns.

Impacts from Special Status Species Direction:

Commercial and Non-Commercial Forestry

Implementing the restrictions in **Appendix D** would lengthen the time needed to accomplish forest vegetation treatments in the approximately 52,100 acres where wildlife habitat occurs. This would delay the time it would take to return the areas to historical conditions of structure and composition. Areas that could normally be treated in 1-2 years would have to be extended out further to meet restrictions, leaving these areas susceptible to wildland fire and insect and disease outbreaks. It would also cause some loss of value in salvage areas affected by insects and disease and wildland fire because the trees would remain salvageable for only 2 years.

This would not prevent the PSQ from being achieved because treatments in other areas outside these habitat areas could be done to meet the PSQ. Also, **Appendix D** does not prohibit treatments in these areas; it only puts restrictions on time periods of treatments.

By improving migratory bird habitat the stand densities of dry conifer species would be reduced. This would move the Dry Conifer type treated towards historical structure and composition overall, making it more resilient to insect and disease outbreaks and damage from wildland fire.

Impacts from Wildland Fire Management Direction:

Commercial and Non-Commercial Forestry

Currently, the distribution between LHCs in the Aspen/Aspen Conifer/Dry conifer mix is 45% LHC-A (all key ecological components present) and 55% LHC-C (key ecological components absent). In Alternative C there would be a treatment of approximately 20,000 acres in the Aspen/Aspen Conifer/Dry Conifer type. The approximately 20,000 acres treated would all be in the BpS class E (Late Seral Closed). The objective of this alternative would be to increase the aspen component of the forest, and treatment would move 100% of the acres treated to BpS class A (Early Seral) to stimulate aspen suckering. The treatment would cause the acres treated to shift from LHC-C to LHC-B (some key ecological components present) by 22% in the short-term (10 years). This would decrease the susceptibility of the forested lands to insect and disease outbreaks and wildland fire.

In the long term (30 years), natural succession would move 18% of acres to LHC-A. The remaining 4% of acres would move back to LHC-C, creating a mix of 63% LHC-A and 37% LHC-C. This would be the greatest improvement in LHC over all of the alternatives. The forest would be closer to historical conditions in structure and composition and more resilient to insect and disease outbreaks and wildland fire.

In Alternative C there would also be 70 acres of treatment in the Wet/Cold Conifer type. All of the approximately 700 acres of Wet/Cold Conifer within the planning area are currently in LHC-B. The treatments in the Wet/Cold Conifer would be in BpS class D (Late Seral Closed) and the acres treated would remain in Class D. Because the acres treated would remain in the same BpS class there would be no movement in LHC class. The Wet/Cold Conifer type would remain in LHC-B in both the short and long term.

Impacts from Lands and Realty Direction:

Commercial Forestry
There would be approximately 49,900 acres identified for disposal (Zone 4). Of these acres, approximately 3,700 acres contain commercial timber. This is approximately 8% of the total commercial timber base. The BLM would be compensated at appraised market value for any timber that is on the lands disposed. This would not affect the PSQ because treatments outside of the 8% could be done to meet forest the PSQ.

Non Commercial Forestry
Within the 49,900 acres that would be identified for disposal (Zone 4) in Alternative C approximately 7,000 acres contain non-commercial forest. This would cause a reduction of non-commercial forest in the planning area by about 15%. This would create a reduction in the amount of land that would be available for the collection of SFP such as fuel wood, mushrooms and berries. Because this is such a small percentage of the overall non-commercial forest in the planning area, it would not create a reduction in opportunities for collection of SFP and other uses.

4.3.1.7 Alternative D

Impacts from Vegetation Direction:

Commercial and Non-Commercial Forestry
By increasing the Dry Conifer type to achieve a mix of 80% Dry Conifer and 20% of Aspen/Aspen Conifer Mix there would be no movement towards historical structure and composition. This would make the forest more susceptible to insects and disease and damage from wildland fire due to higher tree densities and the lack of an aspen component for fuel breaks.

Increasing the dry conifer would allow more timber to be available to meet the PSQ. This would increase the PSQ in the future as rotation ages shorten and more harvesting is done to keep a rotation age of greater than 60 years.

Impacts from Wildland Fire Management Direction:

Commercial and Non-Commercial Forestry
Currently, the distribution between LHCs in the Aspen/Aspen Conifer Mix/Dry Conifer is 45% LHC-A (all key ecological component present) and 55% LHC-C (key ecological components absent). In Alternative D there would be a treatment of approximately 20,000 acres in the Aspen/Aspen Conifer/Dry Conifer type. All approximately 20,000 acres treated would be in the BpS class E (Late Seral Closed). Because the objective of this alternative would be to increase

the Dry Conifer type for commercial harvesting, the treatment would move 80% of the treated acres into BpS class D (Late Seral Open) and 20% would remain in Class E. The treatment would cause the forested acres to shift from LHC-A to LHC-B (some key ecological components present) by 16% and LHC-C to LHC-B by 17% in the short-term (10 years). There would be little or no improvement in forest health from these treatments in the short term.

In the long term (30 years) natural succession would begin to shift acres from LHC-A to LHC-B and from LHC-B to LHC-C creating a mix of 14% LHC-A and 40% LHC-B and 46% LHC-C. While less forest would be in LHC-C far less would be in LHC-A moving the forest health further away from historical conditions of structure and composition. This would make the forest more susceptible to insect and disease outbreaks and wildland fire.

In Alternative D there would also be 70 acres of treatment in the Wet Cold Conifer. All of the approximately 700 acres of Wet/Cold Conifer within the planning area are currently in LHC-B. The treatments in the Wet/Cold Conifer would be in BpS class D (Late Seral Closed) and the acres treated would remain in Class D. Because the acres treated would remain in the same BpS class there would be no movement in LHC class. The Wet/Cold Conifer would remain in LHC-B in both the short and long term.

Commercial Forestry

In Alternative B there are approximately 39,700 acres of commercial timber designated as suitable for WFU. This would have an impact on the PSQ as 99% of the commercial timber would be available for WFU. The amount of timber harvested could be increased due to salvage operations that would utilize the areas burned. Also this could reduce the number of acres of commercial timber available for harvesting in future projects.

Non-Commercial Forestry

In Alternative B there are approximately 86,400 acres of non-commercial timber suitable for WFU. This could have a short-term affect on the SFP as 100% of all the non-commercial areas would be available. Areas where WFU is implemented would become unavailable for collection of SFP until the vegetation that provides the products returns.

Impacts from Lands and Realty Direction:

Commercial Forestry

There would be approximately 121,400 acres identified for disposal (Zone 4). Of these acres, approximately 13,700 acres contain commercial timber. This is approximately 30% of the total commercial timber base. The BLM would be compensated at appraised market value for any timber on the lands disposed. This would affect the PSQ, as nearly a third of the commercial timber base would be disposed of leaving a much smaller base to meet the PSQ.

Non Commercial Forestry

Within the 121,400 acres that would be identified for disposal (Zone 4), approximately 22,100 acres contain non-commercial forest. This would cause a reduction of non-commercial forest in the planning area by about 49%. This would create a reduction in the amount of land that would be available for the collection of SFP such as fuel wood, mushrooms, and berries. This would cause a reduction in the opportunities available for collection of SFP because such a high percentage of the non-commercial forest would no longer be in public ownership.

4.3.1.8 Cumulative Impacts

Cumulative impacts on forestry include past, current and future management decisions that may affect forestry in the planning area. The cumulative impacts discussion that follows considers the proposed alternatives and management decisions outside the scope of the RMP that may affect the Forestry program in the planning area. Areas considered include BLM, Forest Service, Tribal, State of Idaho and private lands within the planning area.

Past, Current and Future Actions: Alternatives C and D would treat the most acres in forested areas; however, they would accomplish different objectives. In Alternative C, acres would be treated to move towards LHC-A and historical conditions with 63% reaching LHC-A in the long-term (30 years). This would be similar to treatments done by the USFS. In Alternative D the focus would be on timber production. Dry conifer would be favored over aspen and rotations would become shorter. This would create a movement of the forest away from LHC-A towards LHC-B and C and begin to mimic treatments by state and private landowners for increasing revenue. The aspen component would not have a chance to regenerate and the forest would stay outside the historical range of structure and composition.

Alternative B treatments would be similar to those in Alternative C in trying to create a 40/40/20 mix of Aspen/Aspen Conifer Mix/Dry Conifer types. The main objective of the treatments would to be to move the forest towards LHC-A and improve the overall health of the forest making it more resilient to insect and disease outbreaks and catastrophic wildland fire. Treatments would be at lower levels that in Alternative C and in different BpS classes, causing little movement towards LHC-A in the long term and would only increase the acres in LHC-A by 2% over current conditions in the long term.

Alternative A would keep the treatments at current levels and have little effect on the LHC classes in the short-term. The majority of the forest would remain outside the historical structure and composition. In the long-term more acres would move to LHC-C, as the number of acres treated would not be able to keep up with natural succession.

In 2003 the Caribou National Forest Plan was revised. The objectives for timber management in the plan revision were to maintain a healthy forest and to achieve timber stand improvement on at least 3,600 acres within ten years. These treatments in areas adjacent to public lands in the planning area could help move these lands toward historic conditions. This would reduce the potential for insect and disease outbreaks and potential for wildland fire that could affect management on BLM lands.

Population expansion into WUI areas could increase, which could alter the forest management goals as fuel treatments could begin to target more of the WUI to protect homes and private property from wildland fire. These treatments would move the areas toward historical composition and structure, as species such as aspen are favored as fuel breaks. However areas outside of the WUI would receive lower levels of treatment and continue to be outside historical conditions and at risk of insect and disease outbreaks and wildland fire.

In the time period of 1987-2002, harvesting of private land made up about 146 MMBF or about 29,000 acres in Southeast Idaho. The trend has begun to slow, however, with typically only 4 MMBF harvested annually or about 800 acres. Private landowners in the area typically manage

their land for revenue. State forestlands managed by the IDL are also managed to maximize revenue. Management of these lands favors shorter rotations. It is not cost effective to manage these lands to mimic historical conditions or LHC-A. Also, aspen is not considered a commercial species and would not be favored for regeneration. This applies to most, but not all, private forestlands, as some may never be harvested. Thus, in the planning area, these private forestlands would continue to be outside historical conditions.

Effects on forested vegetation due to the management of other landowners could affect forested vegetation on public lands. When hazardous fuels are not treated adequately on adjacent lands, fuel hazard could increase, raising the potential for wildland fire.

Wildland fire or insect and disease outbreaks may affect the actual volume of commercial harvest offered for sale. These events could lead to salvage harvesting to recover the economic value of timber killed and could cause an area to need reforestation through planting. Because the scale of these events cannot be predicted, the timber volume or number of acres of planting cannot be estimated.

4.3.1.9 Tribal Treaty Rights and Interests

Forest treatments in Alternatives B and C would have a long-term impact on tribal treaty rights and interests. By managing for increased amounts of aspen, wildlife habitat would be improved. Hunting opportunities would be disrupted during treatments. However, hunting opportunities would increase in the long term as wildlife habitat improves. This would also increase the forage base available for wildlife and livestock.

Forest treatments in Alternatives A and D would not have the same affect. Treatments in Alternative A would remain status quo and would not favor aspen regeneration. Treatments in Alternative D would favor dry conifer and would not increase and could possibly decrease the aspen component. Neither would improve wildlife habitat or the forage base.

4.3.2 LANDS AND REALTY

This section presents the potential impacts on Lands and Realty from various resources and uses management actions as described in the four alternatives. Existing conditions concerning Lands and Realty are described in Section 3.3.2.

4.3.2.1 Summary

In Alternative A, management direction for land tenure adjustments, LUAs, withdrawals and access would not change. It is likely that difficulties in administering public lands with a scattered land ownership pattern, concerns regarding updating avoidance and exclusion areas, and public access limitations would continue.

Alternative A identifies specific parcels available for sale or exchange, approximately 32,200 acres. Alternatives B, C, and D propose a four zone concept to improve the administration of public lands through land tenure adjustments (acquisition, sale or exchange) to consolidate public lands into contiguous tracts that can be managed more efficiently and cost effectively and provide isolated small tracts for sale or exchange. The goal for Zones 1 and 2 is to retain and consolidate large tracts of public lands. Zone 3 provides for the consolidation of public lands

with minimal change to boundaries and Zone 4 identifies those scattered/isolated public lands available for disposal. Based upon this zone concept for land tenure adjustment, by alternative, the PFO public land base would range from approximately 613,800 acres (Alternative A) to 553,100 acres (Alternative D).

Public lands identified as either "Open", "Avoidance" or "Exclusion" areas for LUAs (primarily ROW) would vary by alternative. Avoidance and exclusion areas comprise 4-9% of the total public lands base by alternative. These areas are critical to protect important resources, special status species, recreation sites, and special designations (ACEC, RNA, and WSA). LUAs in open or avoidance areas would be mitigated and stipulated to assure impacts on resources and uses are minimized. No BLM ROW corridors are designated in this Pocatello RMP/EIS, but this plan may be amended to designate corridors on completion of the West-wide Energy Corridor Programmatic EIS. Management direction for linear ROWs emphasizes consolidating ROW within existing use areas or corridors to the extent possible.

Alternative A proposes specific trails/roads for access acquisition, approximately 44 miles. Alternatives B, C, and D propose priority areas for acquiring public access to public lands for both administrative and public access.

Alternatives A and D propose to pursue a discretionary withdrawal on approximately 1,500 acres (RNAs). Alternatives B and C propose a withdrawal on approximately 19,000 acres (RNAs, Soda Springs Hills Management Area, Bowen Canyon ACEC). These discretionary withdrawals would close the land to Locatable Minerals entry and would make them unavailable for disposal.

Table 4.3.2-1 summarizes lands and realty indicators used to assess impacts of resources and resource uses management direction by alternative.

Table 4.3.2-1. Comparison of Lands and Realty Indicators by Alternative

Indicator	Alternative			
	A	B	C	D
Public Lands Acres Retained	581,600	585,650	588,850	553,100
Zone 4 [1] Disposal Acres	64,400	56,300	49,900	121,400
Potential Zone 4 [2] Disposal Acres	32,200	28,150	24,950	60,700
Land Use Authorization Open Acres	561,700	590,000	590,000	590,000
Land Use Authorization Avoidance Acres	20,200	21,900	21,900	23,800
Land Use Authorization Exclusion Acres	30,700	1,900	1,900	0.0
Proposed Public Land Withdrawal Acres	1,500	19,200	19,200	1,500

[1] The zone concept for land tenure adjustments does not apply to Alternative A. Specific parcels of public lands were identified totaling the acreage amount as identified.
[2] Potential Zone 4 disposal acres are based upon the assumption that approximately 50% of the identified public lands would be disposed through land exchanges or sale over the next 20 years.

4.3.2.2 Methods of Analysis

Indicators

Management actions described in the alternatives could result in impacts on the Lands and Realty program. Indicators used to quantitatively assess management changes include the following:

- Acres retained in public lands base,
- Acres in Zone 4 disposal areas,
- Acres identified in Open, Avoidance and Exclusion areas, and
- Public land acres proposed for withdrawal.

Methods and Assumptions

Land Tenure Adjustment

- Alternative A identifies specific parcels available for either sale or exchange. Approximately 32,200 acres are identified for sale or exchange. It was expected that over the next 20 years all 32,200 acres would leave federal ownership.
- Alternatives B, C, and D propose a Zone Concept for land tenure adjustments. There are four zones identified, each having similar resource or management concerns. Zone 1 lands would be retained. Zone 2 lands would be retained and consolidated with no change to the land base. Zone 3 lands would be consolidated while maintaining overall land base. Zone 4 lands would be available for disposal, with the possibility of a net loss of public lands.
- For the purpose of analyzing land tenure adjustment, actions involving the disposal of public lands, it was expected that only 50% of public lands identified for disposal (Zone 4) would actually transfer out of public ownership over the next 20 years as identified in **Table 4.3.2-2**.

Table 4.3.2-2. Zone 4 Acres Potentially Disposed of by Alternative Based Upon Assumption that 50% of Public Lands Identified for Disposal Would Be Transferred Over the Next 20 Years

	Alternative					
	B		C		D	
Zone	Acres	Disposal Acres	Acres	Disposal Acres	Acres	Disposal Acres
1	50,800	0.0	50,800	0.0	50,800	0.0
2	365,700	0.0	418,900	0.0	18,400	0.0
3	141,000	0.0	94,200	0.0	423,200	0.0
4	56,300	28,150	49,900	24,950	121,400	60,700

Land Use Authorizations (ROWs, Leases, and Permits)

- LUAs are used for roads, water pipelines, natural gas pipelines, power lines, telephone lines, fiber optic cables, railroads, highways, canals, ditches, apiary sites and communications sites. Open, avoidance and exclusion acreages are used as indicators to determine the availability for LUAs.

Withdrawals

- Withdrawals are completed for many types of uses including power site reserves, power projects, PWRs, administrative sites, stock driveways, and irrigation projects. In some cases, other federal agencies pursue and hold withdrawals, for example BIA, US Department of the Interior, Bureau of Reclamation (BOR) and Federal Energy Regulatory Commission (FERC). With such withdrawals, surface management jurisdiction may actually be transferred to the other federal agency. However, for the purposes of analysis, only the public lands acres (withdrawals) are analyzed in this document and used as an indicator to determine availability of public land for multiple use purposes.

4.3.2.3 Impacts Common to All Alternatives

Impacts from Air Quality Direction: Implementing Air Quality direction could effect LUAs and BLM's actions to obtain physical and legal access. The Lands and Realty program must follow policy, regulations and law when processing all lands actions to reduce/minimize fugitive dust. Proposals for actions that could potentially degrade air quality would have to be mitigated, sited in acceptable alternative locations, or, in some rare cases be denied.

Impacts from Cultural Resources Direction: Several aspects of the Lands and Realty program, LUAs, land tenure adjustments, and the acquisition of access to public lands, could be affected by Cultural Resources management direction. These lands and realty actions are considered federal undertakings and must avoid inadvertent damage to federal and non-federal cultural resources through compliance with Section 106 of the NHPA. When a lands action is proposed an inventory would be conducted and impacts on important cultural sites would need to be avoided by project redesign/rerouting, project rejection, and/or mitigation of adverse impacts through data recovery. Such actions to avoid adverse impacts could increase processing costs and processing time for both the federal and non-federal parties.

Impacts from Soils Direction: The management of soils could affect LUAs and the BLM's actions to obtain physical and legal access. The Lands and Realty program must follow policy, regulations and law when processing all lands actions to reduce soil loss and maintain long-term soil productivity. Proposals for actions that could potentially impact soils would have to be mitigated, to be sited in acceptable alternative locations, or, in some rare cases, to be denied.

Impacts from Paleontological Resources Direction: Impacts from the management of paleontological resources would be very similar to those of cultural resources. Lands and realty projects occurring in known fossiliferous areas would require that adequate time and resources be allocated to conducting an inventory of resources. The discovery of scientifically important paleontological resources could result in the rerouting or redesigning of the proposed LUA or easement. The presence of these resources could also lead to the restructuring or rejection of a

proposed land tenure adjustment. Such actions could increase processing costs and time for both the federal and non-federal parties.

Impacts from Vegetation Direction: The management of vegetation could impact the Lands and Realty program by affecting LUAs and access easements. In order to prevent the spread or increase of invasive/noxious weeds, stipulations would be incorporated to LUAs for the prevention and treatment of noxious weeds. Implementing these stipulations could increase applicants' costs in using and/or maintaining approved LUAs or access easements.

Impacts from Fish and Wildlife Direction: Fish and Wildlife direction would have several impacts on the Lands and Realty program. The need to protect fish and wildlife habitat would impact LUAs, land tenure adjustments, and the acquisition of access to public land. Facilities proposed to be constructed under various LUAs or access easements in areas that could adversely affect wildlife or fisheries would need to be mitigated, constructed in an alternative location, or in some cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where wildlife or fisheries could be adversely affected may need to be restructured or eliminated from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

Impacts from Special Status Species Direction: The management of special status species would have several impacts on the Lands and Realty program. The need to protect special status species and their habitat could impact LUAs, land tenure adjustments and acquisition of physical and legal access. Facilities proposed to be constructed under various LUAs or access easements in areas where special status species (and/or their habitat) are present may need to be mitigated, constructed in alternative locations, or, in some rare cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where special status species could be adversely affected may need to be restructured or eliminated from consideration. Such actions could increase processing costs and time for the federal and non-federal parties.

Impacts from Visual Resources Direction: VRM could affect LUAs such as ROW, leases, and permits. Facilities would need to meet objectives for the particular VRM class in which a project was proposed. This could entail mitigation, relocation, or elimination of certain facilities resulting in additional time and costs in project development.

Impacts from Water Resources Direction: The management of water resources could affect LUAs, as well as the BLM's actions to obtain legal and physical access to public lands. Proposals for facilities and actions that would potentially degrade water resource quality would have to be mitigated, to be sited in acceptable alternative locations, or, in some rare cases, to be denied.

Impacts from Wildland Fire Management Direction: Wildland fire management would generally help protect facilities on public lands authorized through the Lands and Realty program by reducing fuel loads and suppressing fires. However, there would be a possibility of losing control of prescribed fire treatments and damaging aboveground facilities.

Impacts from Forestry Direction: Management of forest products would potentially result in the need for road access to forested areas in the form of road ROWs/easements and road use

agreements. It could also result in a need for the BLM to acquire easements for legal and physical access to public lands.

Impacts from Livestock Grazing: For livestock grazing, LUAs such as ROW and BLM access easements that traverse areas where livestock grazing occurs could occasionally require mitigation that involves excluding livestock grazing during the construction and rehabilitation phases of the project. Mitigation could also be required to facilitate livestock movement or provide for public safety (e.g., fencing and cattle guards) throughout the effective period of the authorization.

Impacts from the RFDS for Fluid Minerals Direction: The RFDS for Fluid Minerals (oil and gas, geothermal resources) development could impact the Lands and Realty program by requiring additional LUAs, such as ROWs for pipelines and roads. In the RFDS, it is expected that 10 exploratory wells would be developed over the next 20 years. In association with those wells it was expected that approximately 25 acres per well, including four miles of access road, would be disturbed. Authorizations would typically require road or other ROWs. Five development wells were estimated with 30 acres of disturbance due to associated pipelines. Since the location of these wells would mostly likely be spread over several thousand acres of public and National Forest lands (areas with High oil and gas potential) the impact on lands and realty would be minimal. Some existing road ROWs could be impacted by minerals and energy development due to increased use of the road. The proponent would be responsible for any mitigation required to protect rights of existing LUAs.

Impacts from Special Designations Direction: The need to manage NHTs to protect the values for which they were designated could impact LUAs such as ROWs as well as BLM actions to obtain legal and physical access to public lands. A 250-foot buffer zone around historical trails would continue to be an avoidance area for issuance of LUAs. Proposed facilities such as power lines would need to be mitigated (e.g., burial of the line) or rerouted in order to protect these trail values. Land tenure adjustments such as sales or exchanges may need to be restructured or eliminated from consideration in order to avoid disposing of public lands containing important trail segments.

4.3.2.4 Alternative A

Impacts from Vegetation Direction: The management of vegetation could impact the Lands and Realty program by affecting LUAs and access easements. In order to prevent the spread or increase of invasive species/noxious weeds, stipulations would be incorporated for the prevention and treatment of noxious weeds in all LUAs. Implementing these stipulations could increase the applicants' costs in using and maintaining approved LUAs or access easements.

Impacts from Special Status Species Direction: The management of special status species would have several impacts on the Lands and Realty program. The need to protect special status species and their habitat could impact LUAs, land tenure adjustments and acquisition of physical and legal access. Facilities proposed to be constructed under various LUAs or access easements in areas where special status species (and/or their habitat) would need to be mitigated, constructed in alternative locations, or in some rare cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where special status species

could be adversely affected would need to be restructured or eliminated from consideration. Such actions could increase processing costs and time for the federal and non-federal parties.

Impacts from Lands and Realty Direction:

Land Tenure Adjustment
In this alternative there is the potential that approximately 32,200 acres (5% of the public lands within the planning area) would leave federal ownership. Alternative A identifies specific parcels that could be disposed of through State exchange only, sale or exchange, or exchange only. Identifying specific parcels limits flexibility when processing land tenure adjustments. There have been many proposals over the last 10 years that include parcels that are not currently identified for sale or exchange. Lands identified for disposal near communities would be limited in this alternative and would limit opportunities or community expansion or public needs.

Land Use Authorizations
Approximately 561,700 acres would be open to the issuance of LUAs. Each proposal would be subject to a site-specific analysis through the NEPA process.

All LUAs would be avoided on approximately 20,200 acres. These acres include the areas around Grays Lake and the Blackfoot River and the existing ACECs. The majority of the acres around Grays Lake and the Blackfoot River are withdrawn to the BIA for the Fort Hall Irrigation Project. The BLM has jurisdiction over LUAs and can grant certain rights as long as they do not interfere with the irrigation project. There are existing ROWs authorized in this area, and it is foreseeable that LUAs could be needed in the future.

Approximately 30,700 acres would be excluded from LUAs. These include the RNAs and the Petticoat and Worm Creek WSAs. There are several existing ROWs within these areas but there have been very few proposals within these areas within the last 10 years. New proposals would be either rerouted or dropped from consideration. Existing LUAs would remain in effect.

Access
Approximately 44 miles of legal road and trail access would be identified for acquisition (**Appendix G**). With the denial of access to public lands identified as an issue by the public, the identification of specific routes in this alternative would limit opportunities for acquisition or require a land use plan amendment if access was needed in areas not addressed by these identified routes.

Withdrawals
On the approximately 45,400 acres of public land that is currently under a withdrawal, the BLM may allow uses only if they would not interfere with the purposes for which they were withdrawn. Alternative A direction would purpose that the BLM pursue a discretionary withdrawal on approximately 1,500 acres of designated RNAs. These withdrawals would prohibit development of Locatable Minerals. Other than a Locatable Minerals closure, the management of these areas under the Lands and Realty program would remain the same. In this alternative an approximate total of 46,900 acres of public land would be withdrawn.

Impacts from Minerals and Energy Direction: The management of Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals could result in requests for LUAs such as ROWs and permits for utilities and access. Direction to pursue a mineral entry

withdrawal (discretionary closure on approximately 1,500 acres of designated RNAs) would require a lands action to process the withdrawal.

Impacts from Recreation Direction: Recreation management direction could affect LUAs such as ROWs, leases, and permits. LUAs would be issued consistent with the Recreation Opportunity Spectrum (ROS), setting prescriptions within SRMAs and where applicable would be stipulated to ensure compliance with OHV designations. These actions could result in additional time and costs associated with project development.

Impacts from Special Designations Direction: The Petticoat Peak WSA and Worm Creek WSA (approximately 11,200 acres) would continue to be managed as an exclusion area for issuance of LUAs (ROWs). The existing, approximate 1,500 acres designated as RNAs would continue to be managed as exclusion areas. Applicants would be made aware of these areas in a pre-application meeting and no proposals would be accepted for identified exclusion areas.

Approximately 9,900 acres within existing ACEC boundaries would be managed as avoidance areas. Potential applicants would be required to avoid these areas if at all possible when planning for the location of ROWs and other LUAs. If the applicants proposal is unable to avoid these areas, special stipulations and mitigating measure would be incorporated into the authorization to minimize potential adverse impacts.

4.3.2.5 Alternative B

Impacts from Vegetation Direction: The management of vegetation could impact the Lands and Realty program by affecting LUAs and access easements. All lands actions that have the potential to cause major surface disturbance would be required to meet applicable *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a). These Standards would be used to determine the successfulness of reclamation and rehabilitation.

Impacts from Special Status Species Direction: Like in Alternative A, the management of special status species would have several impacts on the Lands and Realty program. There are approximately 513,200 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat in the PFO area. In documented breeding and brood rearing habitats and winter habitats with seasonal restrictions (March 1 - June 30 and December 15 - March 1, respectively) adjustments in LUAs may be required such as timing of activity or moving the activity to a different area. Site specific assessments may allow activities to take place during the restricted periods pending further NEPA analysis as appropriate. The need to protect special status species and their habitat could impact LUAs, land tenure adjustments, and acquisition of physical and legal access. Facilities proposed to be constructed under various LUAs or access easements in areas where special status species (and/or their habitat) are present would need to be mitigated, constructed in alternative locations, or, in some rare cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where special status species could be adversely affected would need to be restructured or eliminated from consideration. Such actions could increase processing costs and time for the federal and non-federal parties.

Impacts from Lands and Realty Direction:

Land Tenure Adjustments

Alternative B proposes a zone concept for land tenure adjustments. Unlike in Alternative A, which identifies specific parcels that could be adjusted through a State exchange only, sale or exchange, or exchange only, this alternative proposes 4 zones which contains public lands that have similar land management issues. Zone 4 is considered the disposal zone and in this alternative there would be the potential that approximately 28,150 acres (5% of the public lands within the planning area) would leave federal ownership.

An identical screening and criteria process would be used for processing all land tenure adjustment proposals for Alternatives B, C, and D. By implementing a zone concept and applying the screening and criteria process, there would be more flexibility and consistency when processing land tenure adjustments.

By implementing a zone concept for land tenure adjustments, there would be more flexibility and opportunities for the sale or exchange of public lands for community and public purposes over Alternative A, since specific parcels would not be identified for disposal in that alternative. Within Zone 4 all parcels of public lands are considered available for disposal providing greater flexibility in working with a willing applicant.

Alternative B, based upon the potential acres (approximately 28,150) for disposal in Zone 4, would provide fewer opportunities for the sale or exchange of public lands for community and public purposes when compared to the Zone 4 potential disposal acreages of Alternatives A and D (approximately 32,200 and 60,700 acres respectively).

Alternative B would potentially result in reducing the overall public lands base for the PFO by approximately 5% when compared to Alternative A. In Alternative B, isolated, hard-to-manage parcels of public lands would be available for disposal. Management of these isolated parcels of public lands could be more costly and difficult to administer when compared to Alternatives A and D.

All public lands would be classified as unsuitable for entry under the Desert Land Entry Act (1877, as amended) or the Carey Act (1894, as amended) due to one or more factors such as, unsuitable soils, lack of available water or valid water right, topography, or economic feasibility. Implementation of this direction should have no impact on agricultural development within the planning area since no applications have been received during the past 10 years and very little interest in this program has been demonstrated.

Land Use Authorizations

Approximately 590,000 acres would be open to the issuance of LUAs. Each proposal is subject to a site-specific analysis through the NEPA process.

LUA issuance would be avoided on approximately 21,900 acres. These acres would include such resources and resource uses as developed recreation sites, historic trails, special status species habitat, ACECs, and WSAs. There are a few existing ROWs currently authorized in these areas; however, there have not been many proposals in these areas in the last 10 years.

Approximately 1,900 acres would be excluded from LUAs. These acres include already-designated RNAs and the proposed Petticoat Peak RNA. There are several existing ROWs within these areas, but there have been very few proposals within these areas within the last 10 years. New proposals would either be rerouted or dropped from consideration. Existing LUAs would remain in effect.

Access

In Alternative B, access to public lands would be acquired with an emphasis on priority areas (**Figure 2-11**). Public access would also be secured or acquired through all land tenure adjustments. New route construction, route alignment or maintenance to improve access to public lands would be allowed. As funding is available, this management direction would allow the BLM flexibility to acquire needed public access from willing sellers.

Withdrawals

On the approximately 45,400 acres of public land that is under a withdrawal, the BLM would allow uses only if they would not interfere with the purposes for which they were withdrawn. Alternative B would purpose the discretionary withdrawal on approximately 1,500 acres of designated RNAs and an additional, approximate400 acres for the proposed Petticoat Peak RNA. Alternative B would also purpose a discretionary Locatable Minerals withdrawal on approximately 15,000 acres of public lands within the Soda Springs Hills Management Area and approximately 2,300 acres within the Bowen Canyon ACEC. These approximately 19,200 acres of withdrawals would prohibit the development of Locatable Minerals. With the exception of possible Locatable Minerals closures, the management of these areas under the Lands and Realty program would remain the same in Alternative B as under current direction. In this alternative a total of approximately 66,900 acres of public land would be withdrawn.

Impacts from Minerals and Energy Direction: The management of Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals could result in requests for LUAs such as ROWs and permits for utilities and access. Direction to pursue a mineral entry withdrawal (discretionary closure on approximately 19,200 acres for the existing RNAs, public lands within the Soda Springs Hills Management Area, and the Bowen Canyon Bald Eagle Sanctuary ACEC would require a lands action to process the withdrawal.

Impacts from Recreation Direction: Same as Alternative A.

Impacts from Special Designations Direction: The management of special designations could affect LUAs such as ROWs, leases, and permits, land tenure adjustments and the acquisition of legal and physical access to public lands. The Petticoat Peak WSA and Worm Creek WSA (approximately 11,200 acres) would be managed as avoidance areas for issuance of LUAs.

Approximately 9,900 acres within the existing ACEC boundaries would also be managed as avoidance areas. The existing, approximate 1,500 acres designated as RNAs and the proposed, approximately 400 acre Petticoat Peak RNA (Alternative B and C) would be managed as exclusion areas. Facilities proposed to be constructed under various LUAs or access easements within areas that could adversely effect special designations would need to be mitigated, constructed in alternate locations, or, in some cases, dropped from consideration.

Land tenure adjustments such as exchanges or sales proposed in special designations would need to be restructured or eliminated from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

4.3.2.6 Alternative C

Impacts from Vegetation Direction: Same as Alternative B.

Impacts from Special Status Species Direction: In addition to the impacts from special status species direction as described in Alternatives A and B, Alternative C establishes priority areas for both fauna and flora with additional stipulations placed on LUAs. There are approximately 513,200 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat in the PFO area. In documented breeding and brood rearing habitats and winter habitats with seasonal restrictions (March 1 - June 30 and December 15 - March 1, respectively) adjustments in LUAs may be required such as timing of activity or moving the activity to a different area. Site specific assessments may allow activities to take place during the restricted periods pending further NEPA analysis as appropriate. The direction associated with approximately 267,682 acres of priority areas could cause an impact on the Lands and Realty program by requiring the proponent to reroute or redesign their proposal, cause a delay in the issuance of the LUA and could increase the costs to the proponent. With approximately 44% of the planning area designated as priority areas, LUAs that would normally be processed may not be feasible due to routing and/or financial issues.

Impacts from Lands and Realty Direction:

<u>Land Tenure Adjustments</u>
Alternative C, like Alternatives B and D, would propose a zone concept for land tenure adjustments. In this alternative there would be the potential that approximately 24,950 acres (4% of the public lands within the planning area, Zone 4) would leave federal ownership.

An identical screening and criteria process would be used for processing all land tenure adjustment proposals for Alternatives B, C, and D. By implementing a zone concept and applying the screening and criteria process, there would be more flexibility and consistency when processing land tenure adjustments.

By implementing a zone concept for land tenure adjustments, there would be more flexibility and opportunities for the sale or exchange of public lands for community and public purposes than in Alternative A, since specific parcels are not identified for disposal as in that alternative. Within Zone 4 all parcels of public lands are considered available for disposal providing greater flexibility in working with a willing applicant.

Alternative C, based upon the potential acres (approximately 24,950) for disposal in Zone 4, would provide fewer opportunities for the sale or exchange of public lands for community and public purposes than Alternatives A and B potential (approximately 32,200 and 28,150 acres, respectively) because of it would emphasize Special Status Species and Fish and Wildlife management direction to retain important species habitat.

Alternative C would potentially result in reducing the overall public lands base for the PFO approximately 4% over Alternative A. Alternative C would allow for isolated, hard-to-manage

parcels of public lands without important species habitat to be available for disposal. Management of these isolated parcels of public lands could be more costly and difficult to administer when compared to the other alternatives.

All public lands would be classified as unsuitable for entry under the Desert Land Entry Act (1877, as amended) or the Carey Act (1894, as amended) due to one or more factors such as unsuitable soils, lack of available water or valid water right, topography or economic feasibility. This direction is the same for Alternatives B, C, and D. Implementation of this direction should have no impact on agricultural development within the planning area since no applications have been received during the past 10 years and very little interest in this program has been demonstrated.

Land Use Authorizations

Approximately 590,000 acres would be open to the issuance of LUAs. Each proposal is subject to a site-specific analysis through the NEPA process.

Like Alternative B, Alternative C proposes that LUA issuance would be avoided on approximately 21,900 acres. These acres include such resources as developed recreation sites, historic trails, special status species habitat, ACECs, and WSAs. There are a few existing ROWs currently authorized in these areas; however, there have not been many proposals in these areas in the last 10 years.

The designation of avoidance areas would require potential applicants to avoid these areas if at all possible when planning for the location of ROWs and other LUAs. If the applicant's proposal were to be unable to avoid these areas, special stipulations and mitigating measures would be incorporated into the authorization to minimize potential adverse impacts.

Approximately 1,900 acres would be excluded from LUAs, the same as in Alternative B. These acres include the already-designated RNAs and the proposed 400 acre Petticoat Peak RNA. There are several existing ROWs within these areas, but there have been very few proposals within these areas within the last 10 years. New proposals would either be rerouted or dropped from consideration. Existing authorizations would remain in effect.

Access

In Alternative C, which is the same as Alternatives B and D, access to public lands would be acquired with an emphasis on priority areas (**Figure 2-11**). Public access would also be secured or acquired through all land tenure adjustments. New route construction, route alignment or maintenance to improve access to public lands would be allowed. As funding is available, this management direction would allow the BLM flexibility to acquire needed public access from willing sellers.

Withdrawals

On the approximately 45,400 acres of public land that is under a withdrawal, the BLM would allow uses only if they would not interfere with the purposes for which they were withdrawn. Alternative C direction would purpose the discretionary withdrawal on approximately 1,500 acres of designated RNAs and an additional, approximate400 acres for the proposed Petticoat Peak RNA. Like in Alternative B, Alternative C would also purpose a discretionary Locatable Minerals withdrawal on approximately 15,000 acres of public lands within the Soda Springs

Hills Management Area and approximately 2,300 acres within the Bowen Canyon ACEC. These approximately 19,200 acres of withdrawals would prohibit the development of Locatable Minerals. With the exception of possible Locatable Minerals closures, the management of these areas under the Lands and Realty program would remain the same in Alternative C as under current direction. In this alternative a total of approximately 66,900 acres of public land would be withdrawn, the same as in Alternative B.

Impacts from Minerals and Energy Direction: The management of Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals could result in requests for LUAs such as ROWs and permits for utilities and access. Direction to pursue a mineral entry withdrawal (discretionary closure on approximately 19,200 acres for the existing RNAs, public lands within the Soda Springs Hills Management Area, and the Bowen Canyon Bald Eagle Sanctuary ACEC would require a lands action to process the withdrawal.

Impacts from Recreation Direction: Recreation management direction could affect LUAs such as ROWs, leases, and permits. LUAs would be issued consistent with the ROS setting prescriptions within SRMAs and where applicable would be stipulated to ensure compliance with seasonal restrictions as outlined in Recreation direction. These actions could result in additional time and costs associated with project development.

Impacts from Special Designations Direction: The management of special designations could affect LUAs such as ROWs, leases, and permits, land tenure adjustments and the acquisition of legal and physical access to public lands. The Petticoat Peak WSA and Worm Creek WSA (approximately 11,200 acres) would continue to be managed as avoidance areas for issuance of LUAs.

Approximately 9,900 acres within the existing ACECs boundaries would also be managed as avoidance areas. The existing 1,500 acres designated as RNAs and the proposed 400 acre Petticoat Peak RNA (Alternatives B and C) would be managed as exclusion areas. Facilities proposed to be constructed under various LUAs or access easements within areas or that could adversely affect them would need to be mitigated, constructed in alternate locations, or in some cases, dropped from consideration.

Land tenure adjustments such as exchanges or sales proposed in special designations would need to be restructured or eliminated from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

4.3.2.7 Alternative D

Impacts from Special Status Species Direction: Like Alternatives A and B, the management of special status species would have several impacts on the Lands and Realty program. The need to protect special status species and their habitat could impact LUAs, land tenure adjustments and acquisition of physical and legal access. Facilities proposed to be constructed under various LUAs or access easements in areas where special status species (and/or their habitat) are present would need to be mitigated, constructed in alternative locations, or in some rare cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where special status species could be adversely affected would need to be restructured or eliminated

from consideration. Such actions could increase processing costs and time for the federal and non-federal parties.

Impacts from Vegetation Direction: Same as Alternative B.

Impacts from Lands and Realty Direction:

Land Tenure Adjustment

Alternative D, like Alternatives B and C, would propose a zone concept for land tenure adjustments. Unlike Alternative A, which would identify specific parcels that could be adjusted through a State exchange only, sale or exchange, or exchange only, this alternative would propose 4 zones which contain public lands that have similar land management issues. Zone 4 would be considered the disposal zone, and, in this alternative, there would be the potential that approximately 60,700 acres (10% of the public lands within the planning area) would leave federal ownership.

An identical screening and criteria process would be used for processing all land tenure adjustment proposals for Alternatives B, C, and D. By implementing a zone concept and applying the screening and criteria process, there would be more flexibility and consistency when processing land tenure adjustments.

A zone concept for land tenure adjustments would provide more flexibility and opportunities for the sale or exchange of public lands for community and public purposes over Alternative A, since specific parcels are not identified for disposal in that alternative. Within Zone 4 all parcels of public lands would be considered available for disposal providing greater flexibility in working with a willing applicant.

Alternative D, based upon the potential acres (approximately 60,700) for disposal in Zone 4, would provide greater opportunities for the sale or exchange of public lands for community and public purposes when compared to Alternatives A, B and C potential (approximately 32,200 acres, 28,150 acres, and 24,950 acres respectively).

Alternative D would potentially result in reducing the overall public lands base for the PFO by approximately 10% when compared to Alternative A. Alternative D would allow for isolated, hard-to-manage parcels of public lands to be available for disposal, allowing the PFO to block up large contiguous blocks of public lands. This could improve the overall management and administration of the public lands.

As in Alternatives B and C, all public lands would be classified as unsuitable for entry under the Desert Land Entry Act (1877, as amended) or the Carey Act (1894, as amended) due to one or more factors such as unsuitable soils, lack of available water or valid water right, topography, or economic feasibility. Implementation of this direction should have no impact on agricultural development within the planning area since no applications have been received during the past 10 years and very little interest in the program has been demonstrated.

Land Use Authorizations

Approximately 590,000 acres would be open to the issuance of LUAs. Each proposal is subject to a site-specific analysis.

Alternative D proposes that LUA issuance would be avoided on approximately 23,800 acres. These acres include such resources as developed recreation sites, historical trails, special status species habitat, ACECs, and WSAs. In this alternative the 1,500 acres within the designated RNAs would be areas of avoidance. As stated in Alternatives B and C, there are a few existing ROWs authorized in these areas; however, there have not been many proposals in these areas in the last 10 years.

The designation of avoidance areas would require potential applicants to avoid these areas if at all possible when planning for the location of ROWs and other LUAs. If the applicant's proposal is unable to avoid these areas, special stipulations and mitigating measures would be incorporated into the authorization to minimize potential adverse impacts.

No exclusion areas are proposed for Alternative D.

Access

In Alternative D, which would be the same as in Alternatives B and C, access to public lands would be acquired with an emphasis on priority areas (**Figure 2-11**). Public access would also be secured or acquired through all land tenure adjustments. New route construction, route alignment or maintenance to improve access to public lands would be allowed. As funding is available, this would allow the BLM flexibility to acquire needed public access from willing sellers.

Withdrawals

On the approximately 45,400 acres of public land that is under a withdrawal, the BLM may allow uses only if they would not interfere with the purposes for which they were withdrawn. Alternative D direction would purpose that the BLM pursue a discretionary withdrawal on approximately 1,500 acres of RNAs. These withdrawals would prohibit development of Locatable Minerals. With the exception of possible Locatable Minerals closures, the management of these areas under the Lands and Realty program would remain the same in Alternative D as under current direction. In this alternative an approximate total of 46,900 acres of public land would be withdrawn, the same as in Alternative A.

Impacts from Minerals and Energy Direction: The management of Fluid Minerals, Solid Leasable Minerals, Mineral Materials, and Locatable Minerals could result in requests for LUAs such as ROWs and permits for utilities and access. Direction to pursue a mineral entry withdrawal (discretionary closure) on approximately 19,200 acres for the existing RNAs, public land within the Soda Springs Hills Management Area, and the Bowen Canyon Bald Eagle Sanctuary ACEC would require a Lands action to process the withdrawal; however, this would not impact Lands and Realty direction.

Impacts from Recreation Direction: Same as Alternative C.

Impacts from Special Designations Direction: The management of special designations could affect LUAs such as ROWs, leases, and permits, land tenure adjustments and the acquisition of legal and physical access to public lands. Alternative D would not propose any exclusion areas. The Petticoat Peak WSA and Worm Creek WSA (approximately 11,200 acres) would continue to be managed as avoidance areas for issuance of LUAs.

Approximately 9,900 acres within the existing ACEC boundaries would also be managed as avoidance areas. The existing, approximate 1,500 acres designated as RNAs would be managed

as avoidance areas. Facilities proposed to be constructed under various LUAs or access easements within areas or that could adversely affect them would need to be mitigated, constructed in alternate locations, or, in some cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in special designations would need to be restructured or eliminated from consideration. These types of actions could increase processing costs and time for both the federal and non-federal parties.

4.3.2.8 Cumulative Impacts

Cumulative impacts on the Lands and Realty program include past, present, and future management actions that may affect lands and realty associated with the planning area. The cumulative impacts discussion considers the alternatives in the context of the broader human environment, outside the scope described by the RMP, with the purpose of determining whether the proposed action would produce major adverse impacts within the planning area. For the purpose of this analysis, the geographical area considered for this analysis includes all lands within the planning area, which include BLM, Forest Service, Tribal, State of Idaho, and private lands.

Past and Current Actions:

Land Tenure Adjustment

One of the issues affecting the management of public lands within the planning area is the scattered nature of the land pattern. Many parcels of public lands are isolated with no legal access. Over the last 10 years, the PFO has exchanged approximately 5,500 acres. Over 60% of the acres, approximately 3,600, were exchanged with the State of Idaho. Currently, there are four exchange cases pending, totaling approximately 17,400 acres. Two of the exchanges are with private entities and the other two are with the State of Idaho. Only two sales were processed in the planning area in the last 10 years, totaling approximately 20 acres. Both of the sales were for public purposes. There is one sale pending.

Records indicate that the Caribou National Forest, over the last 10 years, exchanged approximately 870 acres within the planning area. It is unknown how many acres were disposed of through sale. Since the Forest boundary is well consolidated and its authority to sell land is limited, it is expected that such disposals constitute a minimal amount of Caribou National Forest lands.

The State of Idaho's Department of Lands also has a land tenure program. The program, similar to the BLM's, strives to improve productivity of state endowment assets and facilitate efficient management. Currently, the State has two pending exchanges with the PFO, totaling approximately 15,100 acres. According to the Department of Lands Web Site, approximately 1,300 acres are proposed for sale in FY 2006. Of those acres, 690 are located within the planning area. The Chief of the Bureau of Real Estate for the Department of Lands indicated that the proposed number of acres for sale is likely to remain steady over the next several years; but the land tenure program has not been evaluated for the long term.

Land Use Authorizations

As indicated in Chapter 3, Section 3.3.2.3, the BLM issues LUAs for such things as power lines, highways, roads, railroads, pipelines, fiber optics, communication sites, electric power

generation sites, irrigation facilities. These authorizations help facilitate commerce, communications, mining, timber harvest, grazing, energy transmission and other uses. The PFO has 360 authorized ROWs and 12 active leases and permits. There are approximately five pending ROW applications and two pending lease applications. On average, the PFO issues 10 new LUAs a year.

The Department of Lands also issues easements and temporary permits authorizing land uses on endowment lands, such as roads, utility lines, reservoirs, ditches, pipelines, corrals and hydroelectric projects.

The Forest Service issues some special use permits for such uses as roads, pipeline, and utilities. The Forest Service has designated several utility corridors within the planning area. These corridors traverse over large blocks of Forest Service lands.

Access

Access to public lands is an important issue to the public. More and more public lands are becoming inaccessible to the general public. Private landowners deny access across their property not only to the general public but also to federal employees trying to administer public lands. The county is responsible for declaring public access across private lands. Where there is no legal public access the BLM must purchase an easement from a willing seller to acquire legal access to the public land. With BLM budgets declining and landowners unwilling to allow access across their property, the lack of access to public lands continues to be a major issue.

Future Actions:

Land Tenure Adjustments

All alternatives allow for land tenure adjustments of public land to varying degrees in order to block up the public land for administrative purposes. Blocking up the public land would make managing the public land more cost effective and would help to eliminate unauthorized use associated with a scattered land pattern. Pending land exchanges with the State of Idaho and private parties would meet land tenure adjustments goals to improve public land administration and block up larger parcels of public lands.

With population increases, counties within the planning area would need to continue to address increased growth in development plans and other planning and zoning efforts; and public lands can play an important role as they would continue to be made available for this purpose. The public land base would remain generally the same with the potential of losing between 4% (Alternative C) and 10% (Alternative D) over the next 20 years. The lands administered by both the Forest Service and the State of Idaho would generally remain the same with some land tenure adjustments processed to block up ownership.

Land Use Authorizations

The number of LUAs, particularly ROWs and permits, is a function of public demand for these uses. Additional future development of adjacent federal, state, and private lands could result in additional requests for and approval of LUAs for facilities such as roads, utilities, water lines, and communications sites. It is also anticipated that activities such as minerals and energy development, fuels treatments, timber harvest and Livestock grazing would continue to require the issuance of LUAs. The public lands available for LUAs would remain relatively the same for

each alternative, ranging from approximately 561,700 in Alternative A to approximately 590,000 in Alternatives B, C, and D.

Access

It is expected that with continued population increases, private landowners moving into the planning area would continue to restrict access to public lands. As funding is available, it would be important for the BLM to work with willing sellers to acquire needed physical and legal access to public lands. Land tenure adjustments could also facilitate the acquisition of needed access. It is expected that other agencies, including local governments, would continue to cooperate to maintain and acquire legal access.

4.3.2.9 Tribal Treaty Rights and Interests

Off reservation treaty rights, such as gathering, hunting, fishing on unoccupied public lands, livestock grazing on ceded public lands, and practicing traditional tribal cultural activities could be affected by land tenure adjustments. Potentially 5% of the public land base could be removed under Alternatives A and B, 4% under Alternative C, and 10% under Alternative D. Individual land exchanges could provide lands for specific tribal uses. As stated in the management direction, consultation would occur with the Shoshone-Bannock Tribes on land tenure adjustments within the ceded land boundary and on those public lands involving tribal treaty rights.

Making lands available for LUA by alternative could affect the number of acres available for the tribal uses. Each alternative proposes avoidance and exclusion areas, with open acres ranging from approximately 561,700 (Alternative A) to approximately 590,000 (Alternatives B, C, and D). Over the last 10 years, an average of 10 LUAs has been issued per year, with an average of less than 5 acres of disturbance per authorization.

Acquiring access, as proposed throughout all alternatives, would gain additional access to public lands in the interest of tribal treaty rights. Currently, many acres of isolated and scattered parcels of public lands are not legally accessible to the public or the tribes.

Currently approximately 62,900 acres of public lands are withdrawn within the planning area. Alternatives A and D would propose to pursue a withdrawal on an additional, approximate 1,500 acres. These are the acres currently designated as RNAs, which have unique values and or characteristics. The withdrawal would protect these RNAs from surface disturbance due to Locatable Minerals development. This withdrawal would not restrict tribal uses. Alternatives B and C would propose to withdraw approximately 1,900 acres of RNA as well as approximately 15,000 acres in the Soda Springs Hills Management Area and approximately 2,300 acres in the Bowen Canyon Bald Eagle Sanctuary ACEC. These withdrawals would also protect these areas from surface disturbance from Locatable Minerals development and would not restrict tribal uses. As long as the withdrawals are in place, the lands would remain in federal ownership.

4.3.3 LIVESTOCK GRAZING

4.3.3.1 Summary

Available acres and AUMs for livestock grazing would be reduced from the current situation in the action alternatives, B, C and D. **Table 4.3.3-1** below identifies the specific number of acres of livestock grazing and AUMs impacted by plan direction by resource.

The primary causes for the differences in available acres are projected land tenure adjustments in lands and realty and changes in the management of riparian areas. Other resource management directions that would have a direct impact on livestock grazing by making acres unavailable and/or reducing AUMs include Vegetation (treatments), Minerals and Energy (selenium), Fluid Minerals, and Livestock Grazing (eliminating preference AUMs within the BSD). Resource management directions that would mostly indirectly impact Livestock Grazing include Fish and Wildlife, Special Status Species, Recreation and Special Designations.

Land tenure adjustments would result in lands being removed from federal ownership. This would have a direct effect on livestock grazing on public lands by removing acres available to livestock grazing. The most acres shifted out of federal ownership would occur in Alternative D, substantially more than in the other three alternatives.

Table 4.3.3-1. Comparison of Livestock Grazing Indicators by Alternative

Indicator	Alternative			
	A	**B**	**C**	**D**
Acres **available** after implementation of plan direction	556,300	560,000	555,340	527,820
Acres **unavailable** after implementation of plan direction	57,500	53,800	58,460	85,980
Anticipated preference/permitted use (AUMs)[1]	86,900	87,500	86,600	82,200
Acres (AUMs) unavailable due to land tenure adjustments	32,200 (5,400)	28,150 (4,700)	24,950 (4,200)	60,700 (10,100)
Conversion of available acres (AUMs) not currently permitted to unavailable for livestock grazing	0.0	330 (55)	7,500 (1,300)	0.0
Acres of fire and nonfire vegetation treatments	3,400	124,300	54,900	162,200
Change in AUMs temporarily unavailable annually due to vegetation treatments (year 1)	60	2,100	900	2,700
Change in AUMs temporarily unavailable annually due to vegetation treatments (years 2 to 10)	120	4,200	1,800	5,400
Acres (AUMs) unavailable due to Solid Minerals development	2,330 (390)	2,330 (390)	2,330 (390)	2,330 (390)
Preference (AUMs) placed in suspension due to the effects of selenium [2]	162	162	162	162
Acres (AUMs) unavailable due to Fluid Minerals development (oil and gas, geothermal)	314 (50)	314 (50)	314 (50)	314 (50)
Preference AUMs unavailable within the BSD Withdrawal	0.0	1,400	1,400	1,400
Acres (AUMs) currently within allotments made unavailable due to RNA designation	0.0	0.0	730 (120)	0.0

[1] Includes total preference (active and suspended) and estimated AUMs for unallocated allotments.
[2] The number shown is not rounded. It is the total AUMs after adjustments to the grazing permits were made as the result of livestock grazing decisions.

Allotments with riparian areas that are not currently permitted would be considered as not available in Alternative B. This would remove approximately 490 acres and 80 AUMs. In Alternative C, all areas currently not permitted would be considered as not available and would remove approximately 7,500 acres and 1,300 AUMs.

Vegetation treatments would have a short-term impact because livestock would be required to be removed from treated areas for a minimum of two growing seasons. This would allow for the adequate recovery or establishment of vegetation so that it may withstand grazing. One long-term impact would be an increase in grasses and forbs, which are preferred by livestock. Vegetation treatment acres and AUMs created are highest in Alternatives B and D. Relatively little treatment would occur in Alternative A and moderate treatment in Alternative C.

The Fish and Wildlife and Special Status Species directions would have indirect impacts through the seasonal restrictions or buffer zones for various plant or animal habitats. This would mostly affect when and where range improvements would be constructed and when they could be maintained. The largest impacts would be from buffer zones around Columbian sharp-tailed and greater sage-grouse nesting and brood rearing habitats. These areas would restrict the level of livestock grazing within grouse habitat. This is likely to have the largest impact on livestock grazing of all the resources because of the extent of grouse habitat. The fencing of trout streams would impact livestock grazing by removing water sources and reducing the amount of available forage. This could affect livestock movement throughout an allotment. These impacts would occur in all alternatives.

The BSD is a Congressional Withdrawal, implemented by Secretarial Order, for the purpose of trailing livestock. However, the BSD currently includes all or a portion of nine grazing allotments providing approximately 1,400 AUMs of preference. This involves 6,800 out of a total of 8,400 acres within the BSD. In alternatives B, C and D, the BSD would no longer provide preference AUMs or be part of grazing allotments. These 6,800 acres and 1,400 AUMs would still be available for trailing purposes in Alternatives B, C and D.

Minerals and energy as well as the RFDS of Fluid Minerals would impact livestock grazing by removing approximately 780 acres. Approximately 480 acres would become unavailable due to mineral development in each of the alternatives. Fluid Mineral development, including oil and gas and geothermal resources, would result in approximately 300 acres being unavailable to grazing. This is consistent across all the alternatives.

Approximately 162 AUMs of sheep grazing on approximately 1,550 acres have been placed in suspension indefinitely due to elevated levels of selenium in the vegetation and water. This is current direction and applies to all alternatives.

Recreational activities would increase human contact with livestock, which could cause stress in animals, animal/vehicle collisions, the vandalism of range improvements and gates to be left open. Included in alternatives B, C and D is travel management planning criteria for establishing designated routes. This travel management direction could reduce the number of roads and the amount of human contact. Motorized recreation would cause the most impact and would be at its highest level in Alternatives B and D. Alternative C would offer the lowest level. Access to

range improvements for maintenance and construction would be limited to designated routes or require prior approval by the authorized officer.

Portions of RNAs occurring within grazing allotments would be closed to grazing in Alternative C. This would have a direct impact on the AUMs available to livestock within those allotments.

Only those actions which would remove forage and/or land for greater than 15 years were used to adjust the current AUMs (92,700 AUMs) or lands available (589,300 acres). Adjustments due to selenium have already been considered in the available base acres and AUMs.

4.3.3.2 Methods of Analysis

Indicators. Management actions could result in impacts on livestock grazing when they directly or indirectly affect the quantity and availability of the forage base. Changes in the forage base could result from Vegetation, Fish and Wildlife, Special Status Species, Wildland Fire Management, Forestry, Minerals and Energy, Lands and Realty, Recreation, and Special Designations.

Indicators that are used to quantitatively assess management changes that could affect livestock grazing management include the following:

- Acres available or not available to livestock for grazing.
- Changes in AUMs due to the effects of selenium.
- Future anticipated permitted use in AUMs.
- Acres of vegetation treatments.
- AUMs temporarily unavailable due to vegetation treatments (years 1 to 10).
- Changes in AUMs due to other management actions.

Methods and Assumptions. Analysis of livestock grazing management is based on the following methods and assumptions:

- Livestock grazing would occur over most of the planning area;
- The planning area is comprised of approximately 613,800 acres of public land of which approximately 556,300 is available and 57,500 unavailable to livestock grazing prior to plan implementation.
- The current level of estimated AUMs within the planning area, including unallocated (not permitted or leased) allotments is 92,700. Permitted AUMs (suspended and active) total approximately 91,400 and unallocated total approximately 1,300 AUMs.
- The types of permitted annual grazing use are expected to remain about the same: cattle would use approximately 74,800 AUMs (85% of the total), sheep would use approximately 12,400 AUMs (14% of the total), and horses would use approximately 400 AUMs (less than 1% of the total).
- One AUM requires six acres to produce 800 pounds of forage (or sufficient forage for a cow-calf pair).
- Impacts would occur to public lands regardless of intermingled private land.

- Vegetation treatment areas would be rested from livestock grazing for two growing seasons following treatment or wildland fire.
- AUMs temporarily lost as a result of resting vegetation treatment areas would become available again after two growing seasons, but resting may be extended if the BLM determines that soil and/or vegetation are not making progress towards attaining objectives.
- The cost per AUM on BLM-administered land is $1.47, based on average lease rates in Idaho from 2001 through 2005.
- All of the parcels identified for land tenure adjustment under Alternative A would be removed from federal ownership.
- Approximately 50% of the lands identified for disposal (Zone 4) would remain in federal ownership.
- Unallotted-, unpermitted-, or unleased-public-land AUMs were estimated based on 6 acres/AUM and are not considered part of the current preference.
- Phosphate mines and Fluid Mineral development (facilities) would stay active for approximately 15 to 20 years and considered a long-term loss to livestock grazing of approximately 780 acres of public land and 130 AUMs.
- The AUMs associated with public lands affected by Solid Leasable Minerals and Fluid Minerals development would be placed in suspended non-use for 15 - 20 years and considered unavailable. However they would become active in whole or in part upon successful reclamation of the disturbed areas.
- Buffer zones for sensitive plant species would be ¼ mile.
- Indirect and direct plan direction would primarily occur on public land.
- Following completion of this RMP, travel management plans would be developed that would designate specific routes.

Environmental impacts associated with the management actions are caused by land use activities within the planning area. Impacts on livestock grazing are generally the result of activities that affect management of forage levels for individual grazing allotments. Impact analyses and conclusions are based on IDT knowledge of resources and the planning area, review of existing literature, and information provided by specialists within the BLM or other agencies. Effects are quantified where possible; in the absence of quantifiable data, best professional judgment was used.

In all alternatives, livestock grazing management direction would not be affected by Air Quality; so this resource is not further addressed under this section.

4.3.3.3 Impacts Common to All Alternatives

Impacts from Cultural Resources Direction: In general, management actions associated with cultural resources would affect relatively small, localized areas and would have negligible effects on livestock forage. Even under the most intense management, such as excavation, the acreage disturbed would be minimal. Fencing some cultural sites could impact livestock grazing by causing a loss of available forage. Restrictions on surface-disturbing and other disruptive

activities near cultural sites may require that some range improvements be modified or relocated. In rare cases, improvements may be precluded. This, too, would cause short-term effects.

Impacts from Soils Direction: Soils management considerations would generally result in enhanced vegetative conditions through actions designed to reduce erosion, which would indirectly increase overall forage production for livestock.

Impacts from Paleontological Resources Direction: In general, management actions associated with paleontological resources affect relatively small, localized areas and would have negligible effects on livestock forage. Even under the most intense management, such as excavation, the acreage disturbed would be minimal. Fencing some paleontological sites could exclude grazing and cause a loss of available forage; this would impact grazing. Restrictions on surface-disturbing and other disruptive activities near sites may require that some range improvements be modified or relocated. In rare cases, improvements may be precluded. This, too, would cause short-term effects.

Impacts from Vegetation Direction: Improving riparian areas not currently in PFC would result in fencing or removing livestock from riparian areas and, possibly, access to water. Season of use may also be changed, limiting grazing within areas with riparian areas to cool season grazing only.

Impacts from Fish and Wildlife Direction: Conflicts may arise where wildlife directly competes with livestock for forage. Big game species, such as elk and deer, compete for similar forage as cattle, sheep, and horses. During certain times of the year, the competition can be more pronounced. In the fall, sheep and cattle prefer the same browse species as deer and elk. The level of impact on livestock becomes pronounced during late summer, fall and winter grazing within big game winter ranges. Adjustments in livestock grazing management would occur if necessary to ensure that 80% of the annual growth of browse remains available to wildlife. There are approximately 188,100 acres of deer winter range and 98,400 acres of elk winter range within the planning area.

Aspen regeneration projects for wildlife habitat would impact livestock grazing in the short term since livestock would need to be excluded from these treatment areas for a minimum of 2 growing seasons for successful establishment of aspen saplings.

Seasonal restrictions associated with winter range would possibly limit when construction or maintenance of range improvements could occur. Road closures during this period would limit access by the permittee.

Fences constructed before BLM standards (BLM Manual H-1741-1) were adopted may need to be modified. This may cause the permittees to increase fence maintenance and to ride the area more frequently to ensure that livestock remain in the appropriate area. This is because fences designed for wildlife passage may be less effective in restraining livestock.

Fisheries actions, such as stream restoration and fish reintroduction, could reduce available forage through the construction of enclosures and riparian pastures. In addition, adjustments in livestock management, such as timing and duration of grazing, might be needed to ensure adequate fish habitat. Fencing steams would also remove a water source from livestock and hinder livestock movement within the allotment.

Impacts from Special Status Species Direction: Seasonal restrictions to avoid disturbance to nesting birds such as the bald eagle would limit when range improvement construction and maintenance could be performed. The presence of sensitive plants would limit where range improvements could occur, routes taken to access range improvements, and salting areas used to help distribute livestock.

Vegetation treatments designed to enhance vegetative conditions (LHC) would, in the long term, directly affect livestock grazing activities by enhancing and increasing the forage base, vegetation composition and structural diversity thereby improving livestock distribution and forage utilization. Vegetation treatment areas would receive short-term deferment (at least 2 growing seasons) to allow vegetation to recover. However, enhanced forage availability and forage base would be realized over the long term with herbaceous vegetation replacing woody shrub species.

Impacts from Visual Resources Direction: Restrictions in VRM Class I and II areas may change the type, design, and location of proposed range improvements, but the restrictions may not necessarily preclude development. Range improvements would have to be moved or altered if they fall into expanded viewsheds. However, mitigation should enable most fence and water improvement projects to proceed.

Impact from Water Resources Direction: Any project designed to enhance watershed health would also enhance vegetation resources by reducing erosion, which would have the indirect effect of increasing forage production. However, livestock grazing would be affected by the need to adjust or modify current livestock management to achieve standards and guidelines outlined in the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a). In addition, restrictions on grazing season and duration of use would result from actions designed to protect and enhance water resources. Protection of water quality and watershed health would, in some cases, require changes in livestock management, such as deferred or shortened grazing periods, riparian pastures, increased cattle herding, and upland water development. Managing vegetation to meet DFCs would affect livestock grazing by providing shade in riparian areas within woody communities; however, there would be a reduction in forage availability and forage base. Where livestock grazing inhibits riparian areas from meeting PFC, management changes would be needed and would include altering the season or duration of use, installing fencing, or temporarily removing livestock from some riparian areas.

Management actions that result in increased water availability and forage base would indirectly affect livestock through improved livestock distribution and increased weight gain and conception rates.

Impact from Wildland Fire Management Direction: BLM policy requires that following wildland fire, and in areas where an ES&R plan has been developed, livestock is excluded from grazing the area until identified resource objectives in the ES&R plan have been met. This would provide existing vegetation with the opportunity to regrow and thereby replenish root reserves, flower, and produce viable seed. It would also allow time for recently seeded vegetation to become established following the fire. In addition, vegetation resource objectives must be reached before grazing is reauthorized. WFU could be used in all vegetation types but would primarily be limited to more remote areas where the benefits of restoration using fire outweigh

the risk and cost of controlling it. WFU is only considered in Alternatives B, C and D. The greater occurrence and severity of wildland fires and the addition of more WUI has prompted an increased emphasis in fuels management within the planning area.

Prescribed fires would initially displace livestock and temporarily reduce forage and AUMs. Over the long term, prescribed fire would normally improve the forage base and availability in all vegetation types, which may affect livestock distribution. Prescribed fires can increase watershed yield, which would increase stock water and sediment loads. This would accelerate the rate at which stock ponds fill with sediment and lose capacity, which would allow peak flows following storms to damage diversions or other infrastructure downstream.

Chemical and mechanical treatments would also be used in all vegetation types, affecting both vegetation and livestock in the long term. Only treatments approved for use on public lands would be used. Generally, these treatment types would also have a short-term effect on livestock grazing. Chemical treatments would focus largely on spot treatments to control invasive species/noxious weeds. Mechanical treatments would be used to remove conifers encroaching on aspen and juniper encroaching on the Low-Elevation Shrub type.

Deferring livestock use for two or more growing seasons after a wildland fire or vegetation treatment allows new vegetation to establish and would have a short-term effect by temporarily reducing available AUMs and modifying grazing systems. Livestock would use unburned or untreated areas during the recovery period, or there would be temporary reductions in grazing use. Actions may also require that livestock be completely removed from allotments for a period of time. Allotment restrictions would be managed on a site-specific, case-by-case basis for each vegetation treatment. Permittees may be required to lease additional private land, purchase additional forage, or reduce livestock numbers during interim periods when grazing is temporarily suspended. Wildland fires would have direct short-term effects where WFU damages livestock improvements such as fences and corrals, resulting in increased maintenance for the livestock operator and the need to herd livestock. Wildland fires may also reduce the pastures available for use.

Impacts from Forestry Direction: Areas harvested during timber cutting and/or treatment would be closed for a minimum of two growing seasons, causing short-term impacts. This is necessary for the establishment of aspen and other associated vegetation. In the long term, these practices would result in increased forage and available water for livestock grazing.

Forestry management actions would affect livestock grazing management by allowing natural succession to occur while managing for healthy range and forests, which would increase the forage base in most areas following logging, thinning, or other silvicultural treatments.

Offering 600 to 900 MBF of PSQ saw timber could affect livestock by adding to the forage base as areas open following logging. These areas would revert to early and mid-open vegetation classes, which would contain a larger percentage of herbaceous plant material for forage. Weeds could also invade areas that are logged or thinned as could other nonnative plant species that are unpalatable and may even be harmful to livestock.

Impacts from Lands and Realty Direction: Depending on the activity, impacts are direct or indirect, short-term or long-term. Direct short-term impacts are caused by the construction of

ROWs for energy transmission lines or pipelines and other construction activities that temporarily remove forage and displace livestock until restoration and reclamation are complete. Long-term effects include direct loss of forage where roads and facilities are constructed, reducing forage palatability because of dust on vegetation, and disturbance and harassment caused by increased levels of human activity. Management of livestock would be problematic because of increased levels of human activity: fences could be damaged, gates could be left open, and poisonous weeds could proliferate. All of these impacts could result in reduced forage, lower livestock performance, increased mortality, or increased management. Reclamation of short-term disturbances would replace the forage lost.

Road construction issued under ROWs would affect livestock grazing by creating surface disturbances, removing vegetation, and disturbing livestock. Land clearing and grading necessary for construction would remove vegetation and temporarily reduce the forage base. Construction would also generate additional dust deposits on vegetation, which would reduce the overall quality of the affected forage.

Forage would be lost permanently from road construction, land disposals and exchanges, and the development of alternative energy and other facilities. AUMs would be lost when large blocks of land are either disposed of to the public or the land exchange is not in the same area as the allotment losing the land.

Impacts from Livestock Grazing Direction: Impacts would primarily result from changes to current management made to ensure the long-term availability of livestock forage and rangeland health in concert with competing resources in areas where conflicts exist. Implementation of management practices such as grazing systems, herding, periodic rest from grazing, fencing, water development, and adjusting stocking levels are intended to properly distribute livestock use in pastures or allotments and to reduce the long-term impacts on other resources, especially Special Status Species, Vegetation, Soils and Water Resources. Depending on the rangeland health, presence and condition of special status species habitat, historical grazing practices, and extended period of drought, changes in livestock grazing management may be necessary. The level of management required in these areas may or may not affect stress levels on livestock, conception rates, weaning rates, and management costs.

Implementing *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a) would apply across all alternatives to ensure good site productivity, properly functioning riparian and wetland areas, and vegetation communities composed of desired species, including native, special status, and desirable nonnative species. This would provide direct and indirect long-term effects on vegetation resources. Site-specific monitoring and evaluation strategies would be implemented to measure rangeland health and to evaluate the need to make adjustments in permitted use. Significant progress towards meeting rangeland health standards would be made by various means such as proper timing and intensity of livestock grazing, monitoring to ensure compliance with the terms and conditions of the grazing permit, and successful site reclamation.

Of the 451 allotments (including those not being leased or permitted), rangeland health for 101 allotments has not been determined. Livestock grazing management for the allotments not yet assessed may need to be adjusted, depending on whether the allotments are meeting or making significant progress towards meeting the rangeland health standards. Of the 350 allotments

already assessed, adjustments in livestock grazing management may be necessary if monitoring or new information indicates that current livestock management is not meeting or making significant progress towards meeting standards for rangeland health. Rangeland developments may be used to achieve standards and guidelines: and these practices may include: restoring degraded areas, protecting sensitive sites, improving wildlife habitat through vegetation treatments and water development, and facilitating livestock management through the implementation or change in grazing systems.

Impacts from Minerals and Energy Direction: Short-term impacts would include temporary removal of forage and displacement of livestock during construction of well pads, pipelines, mines, roads, and other facilities. Long-term impacts would include loss of forage where roads and facilities are constructed and reduced forage palatability because of dust on vegetation near roads. All these impacts would result in reduced forage, lower livestock performance, or the increased need for management. Reclamation of short-term disturbances would replace the forage lost from construction. Permanent roads would impact livestock management as better access would be provided for checking on, or moving, livestock or for providing supplemental feed.

Minerals and energy development on public lands creates a network of access roads, pipelines, wells, and other facilities. During the construction of pipelines, livestock could fall into construction trenches, causing injury and death. Water produced from oil and gas activities would be made available to livestock if the quality were sufficient. This additional water would increase livestock distribution and available forage for livestock and wildlife and for other uses.

Surface disturbance from Solid Mineral development would result in increased animal stress and the loss of forage base. However, reclamation of short-term disturbances would replace most of this forage base. The PFO anticipates that approximately 1,330 acres of public land would be dedicated to mineral development, resulting in a decrease of 390 AUMs for the duration of the operations, prior to reclamation and revegetation. However, reestablishing the forage base through reclamation efforts would mitigate the total effect on AUMs. Reclamation of these lands usually returns the grazing lands to production levels found prior to development. Around 10% of the lands impacted by solid mineral development would not be amenable to revegetation. These areas consist of residual pits and highwalls that are rocky or where soil is unavailable.

Minerals and energy development poses a potential conflict when areas are removing from livestock grazing. In addition, hazardous substances from activities such as phosphate mining can be absorbed into plants and water sources, which may affect livestock, especially sheep. There are four operating phosphate mines in the planning area and two pending phosphate mine proposals. These areas may need to be taken out of livestock grazing. Vegetation and water sources, such as springs that are near phosphate mines, currently show high concentrations of selenium (Se) in some locations. These high concentrations result from the mining for phosphate, which can expose naturally occurring rock to the atmosphere. Selenium, leached from the rock by rain and snow, can migrate into soil, springs, and vegetation. The high concentrations of selenium have affected livestock grazing. Based on proximity to phosphate mines, those grazing allotments impacted are Diamond Creek, Dry Valley-Chicken Creek, Trail Canyon 1, Trail Canyon 2, Woodall Mountain, Woodall Ranch, Woodall Spring, Woolsey Ridge 1, and Woolsey Ridge 2. These allotments are showing elevated selenium levels in vegetation and/or water.

Sheep and horses are more susceptible to the effects of selenium than cattle. Sheep consuming vegetation and/or drinking water with elevated selenium levels have died in recent years. Horses are also affected by selenium but are not authorized to graze on public land within the affected areas. The PFO has adjusted grazing in these areas in response to the elevated levels of selenium. Sheep currently graze three out of the nine affected allotments. There has been a loss of 162 AUMs, which is described in each alternative (**Table 4.3.3-2**). These AUMs are lost indefinitely or until methods are developed to reduce the selenium levels.

Table 4.3.3-2. Grazing Allotments Affected by Selenium

Allotment Name	Total Acres of Public Land	Public Acres Affected by Selenium	Percent of Allotment Affected	AUMs Suspended
Trail Canyon 1	309	123	40	4
Trail Canyon 2	190	25	13	5
Woodall Mountain	1,670	1,180	71	153
Totals	2,169	1,328	NA	162

Impacts from the Reasonably Foreseeable Development Scenarios of Fluid Minerals Direction: Direct short-term and long-term impacts would be similar to those from other minerals and energy management decisions. The RFDS predict approximately 185 acres for oil and gas and approximately 129 acres for geothermal leasing would be subject to surface-disturbing activities, some, of which, may occur on the Low-Elevation Shrub, Mid-Elevation Shrub, and Mountain Shrub types. This would represent a loss of up to 30 AUMs and 20 AUMs respectively.

Surface-disturbing activities related to minerals and energy exploration and development would indirectly increase the loss of vegetation cover and the degradation of the forage base through soil erosion and compaction. They would also increase the direct loss of vegetation due to invasive species/noxious weed invasions. Such activities would include the construction of mine facilities, pipelines, and roads as well as trampling, blading, and cross-country travel. These effects would be long term, but they could be mitigated when disturbed areas are reclaimed.

Planned BMPs, management stipulations, resource protection measures, and required reclamation activities would limit potential impacts and reduce the potential for vegetative cover and forage loss.

Impacts from Recreation Direction: Recreation, including OHV use, would cause direct human disturbance, which displaces animals, coats forage with dust from nearby roads, and injures or kills animals in vehicle-animal collisions on roads or highways. Livestock grazing closures in recreational areas would result in a small loss of forage. The temporary removal of vegetation by campers in concentrated areas would also impact livestock grazing, as would vandalized range projects and gates left open. These impacts could increase over the life of the plan because the popularity of outdoor recreation is increasing.

Proposed travel management plans would impact livestock grazing because it could reduce the overall miles of roads throughout the planning area by designating all public lands as either

"Open," "Closed," or "Limited." A reduction in roads would decrease human disturbance and lessen contact between livestock and humans.

Until travel management plans are written, the current direction identifying roads as limited for OHV use would limit travel by OHV to designated routes, reducing impacts on livestock and forage by cross country OHV travel.

Use of "undesignated" roads or trails by permittees to access range improvements, place salt, and conduct other grazing management practices would require approval by the authorized officer via submission of the appropriate permit. Where multiple access routes exist, some could be closed, which may increase the distances traveled or require travel by foot or horse. The use of these access roads would be limited to the specific permitted use. This, in turn, would reduce the amount of recreation-related impacts on livestock.

Impacts from Special Designations Direction: Livestock grazing would be adjusted, if necessary, to ensure that the natural processes associated with RNAs, such as pristine vegetative and soil characteristics, were maintained.

4.3.3.4 Alternative A

Impacts from Special Status Species Direction: Seasonal restrictions to avoid disturbance to nesting bald eagles (February 1 through August 15 and December 1 through March 1) would limit when range improvement construction and maintenance occurs. However, this would be very limited in scope and entail only the Blackfoot River and the Bowen Canyon areas.

Habitat requirements for the greater sage-grouse and Columbian sharp-tailed grouse, such as managing the amounts of residual vegetative cover within nesting and brood rearing areas at the end of the grazing season, could impact livestock grazing. Within the planning area, approximately 221,200 acres of key greater sage-grouse habitat and 442,700 acres of Columbian sharp-tailed Grouse Stronghold Habitat occur and could have a substantial impact on livestock grazing. Since these areas usually occur in whole or in part within allotments or pastures, special measures would be needed to control or adjust livestock grazing. These would include herding; fencing; implementing rest rotation grazing systems; and avoiding using salt, water troughs or any other range improvements which would concentrate livestock within these areas. Impacts on livestock would be either short or long term. Management of special status species would require changes in livestock grazing management to improve the cover and protection of these species, depending on the results of rangeland health analysis.

Special status plant species would require the same level of grazing management as described above, but on a much smaller scale. Currently, Special Status Species management could require changes in livestock grazing management in order to improve the production and vigor of these species, particularly in the Low-Elevation Shrub, Mid-Elevation Shrub, and Mountain Shrub types. Sensitive plant species occur on approximately 310 acres within the planning area.

Impacts from Vegetation Direction: Treatments would occur on approximately 3,400 footprint acres of vegetation over the next 10 years (340 acres per year), which would initially remove forage in treated areas but would increase the long-term forage base.

Alternative A would result in approximately 60 AUMs being temporarily unavailable in the first year following treatment and approximately 120 AUMs annually over the following nine years (**Table 4.3.3-1**). This reduction of AUMs represents less than 1% of the annual AUMs available in the planning area and would not affect the overall forage base. This alternative would cause the fewest AUMs to be temporarily unavailable.

Treatment of invasive species/noxious weeds, including requiring weed-free hay, would lessen the proliferation of unwanted species and would reduce established populations to acceptable levels, thereby maintaining forage production, diversity, and vigor in the treatment areas. Continued proliferation of existing weed species or the introduction of new weed species into new areas would continue to lower forage production and vigor. Untreated invasive poisonous plants could potentially continue to injure and kill livestock. Livestock would be temporarily displaced during treatment, but grazing would resume after a short period of time.

Impacts from Wildland Fire Management Direction: Short-term impacts from wildland fire would include the closure of burned areas for at least two growing seasons or until progress is made towards management objectives. Long-term impacts from changes in the vegetative structure and maintenance of the forage base would depend on the success of ES&R of affected vegetation types following fire suppression. As discussed in Section 4.2.7.4, Vegetation (Alternative A), rehabilitation of the Low-Elevation Shrub and Mid-Elevation Shrub types would be complicated by the lack of proactive vegetation treatments that would reduce fine fuels and standing dead or older shrubs. Lower precipitation levels in these vegetation types further compound the ability to successfully rehabilitate areas following wildland fire.

Impacts from Lands and Realty Direction: Approximately 32,000 acres would be suitable for disposal which would result in approximately 16,000 acres removed from federal ownership. This would reduce the total preference of the planning area by approximately 2,700 AUMs (**Table 4.3.3-1**). However, most land disposals and land exchanges would affect isolated tracts or checkerboard land ownership areas, so the loss of lands and AUMs would be minimal.

Impacts from Livestock Grazing Direction: No changes would occur to the current situation. Of the total of approximately 613,800 acres within the planning area, approximately 556,300 acres would be available for livestock grazing and approximately 57,500 acres would not be available. The amount of available grazing preference (active and suspended) would be approximately 89,870 AUMs. The acres and AUMs available in this alternative reflect the impacts from special designations, the BSD, lands and realty, and Fluid Minerals (oil and gas, and geothermal resources) development.

Grazing allotments would remain within the BSD, even though the purpose of this withdrawal was for livestock trailing.

Impacts from Special Designations Direction: Impacts may occur within allotments (**Table 4.3.3-3)** which partially consist of areas designated as RNAs.

Livestock grazing within RNAs would ensure that the natural processes associated with RNAs, such as pristine vegetative and soil characteristics, continue. This could require adjustments to current livestock grazing practices, limit range improvement development, or change season of use, cattle numbers and the kind of livestock.

Table 4.3.3-3. Allotments With Portions Consisting of Areas Designated as RNAs

RNA	Allotment Name/Number
Cheatbeck Canyon	Trout Creek Spring (04154)
Dairy Hollow	Horse Hollow (04329)
Oneida Narrows	Lower Oneida Narrows (04310)
	Rocky Peak (04412)
	Twin Lakes (14115)

4.3.3.5 Alternative B

Impacts from Vegetation Direction: Vegetation treatments would increase from 3,400 acres in Alternative A to 124,300 acres in this alternative.

Alternative B would result in approximately 2,100 AUMs being temporarily unavailable in the first year following treatment, and approximately 4,200 AUMs annually over the following nine years (**Table 4.3.3-1**). This reduction of AUMs represents 2% of the annual AUMs available and would not affect the overall forage base as impacts on livestock grazing from vegetation treatments would be generally short term (a minimum of 2 growing seasons). Temporary loss of AUMs in Alternative B would be approximately 4,200 AUMs versus 120 AUMs in Alternative A, yet the quantity and quality of livestock forage would increase over the long term.

Treatments would also target the introduction of new weed species into new areas, until all areas received treatments.

Impacts from Special Status Species Direction: Seasonal restrictions to avoid disturbance within .5 miles of bald eagle nesting and roosting sites and ferruginous hawk nests would impact range improvement construction and maintenance in these areas. In addition, disturbances from permitted activities within 0.6 miles from March 1 to May 31 around greater sage-grouse active leks would need to be avoided and would possibly restrict range improvement construction and maintenance during this period (**Figure 3-6** and **Figure 3-7**).

These habitat requirements around leks for greater sage-grouse and Columbian sharp-tailed grouse (0.6 and 2.0 miles respectively) are important for providing quality nesting and brood rearing habitat. Within the planning area, approximately 221,222 acres of key greater sage-grouse habitat and 442,723 acres of Columbian sharp-tailed Grouse Stronghold Habitat occur and could have an impact on livestock grazing altering how livestock operations would be conducted. Since these areas usually occur in whole or in part within allotments or pastures, special measures would be needed to control or adjust livestock grazing. These would include herding; fencing; implementing rest rotation grazing systems; and avoiding using salt, water troughs or any other range improvements which concentrate livestock within these areas. Impacts on livestock would be either short or long term. Management of special status species could require changes in livestock grazing management to improve the cover and protection of these species.

Currently, management of special status species could require changes in livestock grazing management to improve the production and vigor of these species, particularly in the Low-Elevation, Mid-Elevation Shrub, and Mountain Shrub types.

Protecting and restoring Bonneville and Yellowstone cutthroat trout habitat and other habitats for native cold- and warm-water fish species could result in changes in livestock grazing management in riparian areas where these species are reintroduced. Management and planning changes would include altering grazing season and duration of use, as well as using riparian pastures and enclosures to protect fish, white pelican, boreal toad, and northern leopard frog.

Impacts from Wildland Fire Management Direction: Impacts from fire and fuels management are similar to those in Alternative A, except that vegetation treatments in various types would be increased one-to-four times and expanded to include Perennial Grass and Seedings types in order to stabilize and rehabilitate areas. WFU would be allowed on approximately 265,000 acres, up from 0 acres in Alternative A. This would increase the possibility that areas would be closed to livestock grazing for the short term and would increasing forage quality over the long term.

Impacts from Lands and Realty Direction: Approximately 56,300 acres would be suitable for disposal, which would result in approximately 28,150 acres removed from federal ownership versus 32,200 acres identified in Alternative A. This would reduce the total preference of the planning area by approximately 4,700 AUMs, as opposed to 5,400 AUMs in Alternative A (**Table 4.3.3-1**).

Impacts from Livestock Grazing Direction: In general, less acres and AUMs would be available to livestock grazing in this alternative. Of the approximately 613,800 acres within the planning area, approximately 560,000 acres would be available for livestock grazing and approximately 53,800 acres would not be available. The amount of available grazing preference (active and suspended) would be approximately 86,365 AUMs for the planning area. The acres and AUMs available in this alternative reflect that management direction would place unpermitted/unleased allotments with riparian areas in unavailable status, as well as impacts from special designations, the BSD, lands and realty, and Fluid Minerals (oil and gas, and geothermal resources) development.

The unpermitted/unleased allotments with riparian areas are identified in **Table 4.3.3-4**. Approximately 330 acres and an estimated 55 AUMs would not be available for livestock grazing.

Table 4.3.3-4. Acres of Unpermitted/Unleased Allotments With Riparian Areas

Allotment Name/Number	Acres
Bear River at Rose (14402)	120
Densmore Creek (10026)	63
Downata (10082)	23
Fox Hills (14088)	40
Inman Point (10061)	40
Walker Creek (10065)	40

Implementing the Secretarial Order (Congressional Withdrawal #157, Idaho #9) for the BSD would remove approximately 8,400 acres across 13 allotments (**Table 4.3.3-5**) and would result in a loss to preference of approximately 1,400 AUMs (Section 2.6, Livestock Grazing). However, these 1,400 AUMs would be available for trailing purposes.

Table 4.3.3-5. Grazing Allotments (A) and Unallotted Tracts (U) (Public Lands Only) Partially or Entirely within the Boundaries of the Blackfoot Stock Driveway

Allotment Name Number	Total BLM Acres	BLM Acres Inside BSD	BLM Acres Outside BSD	Allotted (A) Unalloted (U)	AUMs Within BSD	Total Permitted AUMs
Beaver Creek (04316)	347	80	267	A	13	54
Blackfoot River (4201)	309	97	212	A	20	64
Blackfoot River (04320)	2,486	2,200	286	A	282	317
Blackfoot River (14121)	220	40	180	A	10	56
EIGA Blackfoot River (14112)	5,459	3,780	1,679	A	945	1,355
Blackfoot River (14092)	318	315	3	A	30	30
Blackfoot River (04430)	193	193	0	A	20	20
Miner Creek (04413)	86	45	41	A	4	8
Trail Creek (04419)	52	45	7	A	45	52
Government Dam (0010)	320	320	0	U	0	0
Negro Creek (0006)	519	519	0	U	0	0
Sagehen Campground (0007)	160	160	0	U	0	0
Womack-Spring Creek (0005)	566	566	0	U	0	0
Total Acres	**11,000**	**8,400**	**2,700**		**1,400**	**2,000**

Impacts from Recreation Direction: Impacts would include those described in the *Impacts Common to All Alternatives*. In addition, areas with designated routes for intensive use activities, such as rock crawling and OHV, may be identified for use during travel management planning. This could conflict with livestock grazing to the point that the area may no longer be available for grazing.

Impacts from Special Designations Direction: Livestock grazing would be allowed to continue within the allotments with RNAs or a portion of an NA (**Table 4.3.3-6**), provided that the natural processes associated with an RNA, such as pristine vegetative and soil characteristics, are maintained:

Table 4.3.3-6. Allotments with Portions Consisting of Areas Designated as RNAs

RNA	Allotment Name/Number
Cheatbeck Canyon	Trout Creek Spring (04154)
Dairy Hollow	Horse Hollow (04329)
Oneida Narrows	Lower Oneida Narrows (04310)
	Rocky Peak (04412)
	Twin Lakes (14115)
Petticoat Peak	Bancroft (06032)

4.3.3.6 Alternative C

Impacts from Special Status Species Direction: Management of special status species to improve maintenance and protection would require long-term changes in livestock grazing management. Such changes in this alternative would be more restrictive for livestock when compared to the other alternatives. The effects of such programs in Alternative C would be

similar to those described in Alternative B, with increased emphasis on annually resting one-third of the areas identified as Columbian sharp-tailed and greater sage-grouse nesting habitat from livestock grazing. One full year of undisturbed growth is necessary to ensure adequate nesting habitat. However, regrowth may also provide adequate nesting cover, depending on such conditions as precipitation and site potential. This impact would be considerable since most grazing systems rely on beginning the grazing year in the pasture rested the previous year. Instead, grazing would begin in a pasture that was grazed the previous year, where little or no residual growth would be available. This could reduce stocking rates and/or season of use. This requirement would affect approximately 267,400 acres.

All streams containing native cutthroat trout habitat would be fenced from livestock grazing unless they are in PFC. This would impact livestock by removing forage and water from an allotment or pasture. There are 54 miles of streams potentially affecting 76 allotments.

A ¼-mile buffer surrounding approximately 308 acres of sensitive plant species would preclude salting and range improvement construction and maintenance, if it were determined that these activities would impact sensitive species. This buffer would impact approximately 3,270 acres occurring within the Deep Creek Mountains, Pleasantview Hills, Bear Lake Plateau, Sheep Creek Hills, Malad River, and Stump Creek areas.

Impacts from Vegetation Direction: Long-term forage quality and quantity would be improved overall as a result of increasing both vegetation and weed treatments from 3,400 footprint acres in Alternative A to 54,900 footprint acres in Alternative C. The number and acres treated annually would occur with an emphasis on a small mosaic pattern of treatments, which would result in increased forage availability and production and better distribution of livestock grazing use. However, the increase in acres treated would also reduce management flexibility and increase operational costs to livestock operators because treatments would be smaller and more frequent and would require subsequent deferment. Loss of forage use due to surface-disturbance and other disruptive activities would be reduced from the level that would occur in Alternatives B and D.

Alternative C would result in 900 AUMs being temporarily unavailable in the first year following treatment and 1,800 AUMs annually over the following nine years (**Table 4.3.3-1**). This reduction of AUMs represents 1-to-2% of the annual AUMs available in the planning area and would not be a significant loss to the overall forage base as impacts on livestock grazing from vegetation treatments would be generally short term (a minimum of 2 growing seasons). Temporary loss of AUMs in Alternative C would be about 15 times greater than in Alternative A, just below half in Alternative B, and a third in Alternative D.

Invasive species/noxious weeds would be treated annually, which would result in a long-term reduction of most invasive species/noxious weeds found in allotments. This would reduce the effect weeds have on livestock grazing management and production. Increased emphasis on weed management in native, weed-free areas would maintain the usefulness of these communities.

Impacts from Wildland Fire Management Direction: Impacts would be greater than in Alternative A due to WFU use. Impacts would be similar to those in B, except that fewer acres of WFU, 212,600 acres for this alternative versus 265,000 acres in Alternative B, would be

allowed. Therefore, the short-term impact of resting burned areas from livestock grazing would be less than in Alternative B as would the long-term impact of improving forage conditions.

Impacts from Lands and Realty Direction: Approximately 49,900 acres would be suitable for disposal. Of these, approximately 25,000 acres would leave federal ownership, which would result in a reduction of approximately 4,200 AUMs versus 5,400 AUMs and 32,200 acres in Alternative A (**Table 4.3.3-1**). However, most land disposals and land exchanges would affect isolated tracts or checkerboard land ownership areas; so the loss of lands and AUMs would be minimal.

Impacts from Livestock Grazing Direction: In general, less acres and AUMs would be available to livestock grazing in this alternative than in Alternatives A or B. Of the 613,800 acres of public land, approximately 555,340 acres would be available for livestock grazing and 58,460 acres would not be available. The amount of available grazing preference (active and suspended) would be approximately 85,550 AUMs for the planning area.

The acres and AUMs available in this alternative reflect the impacts from closing unpermitted/unleased allotments, special designations, the BSD, lands and realty, and Fluid Minerals (oil and gas, and geothermal resources) development.

All areas where grazing is not currently being permitted or leased would not be available in this alternative. This would result in approximately 7,500 acres and 1,300 AUMs being unavailable to livestock grazing as shown in **Figure 2-30**.

Implementing the Secretarial Order (Congressional Withdrawal #157, Idaho #9) for the BSD would remove 8,600 acres across 13 allotments (**Table 4.3.3-5**) and would result in a loss to preference of approximately 1,400 AUMs (Section 2.6, Livestock Grazing). However, these 1,400 AUMs would be available for trailing purposes.

Impacts from Recreation Direction: Impacts would include those described in the *Impacts Common to All Alternatives*

Impacts from Special Designations Direction: Grazing would not be allowed to continue within the RNAs; therefore, the allotments identified in **Table 4.3.3-6** would be closed in whole or in part. This would make approximately 730 acres and approximately 120 AUMs unavailable for livestock grazing.

In addition, designating the Petticoat Peak RNA would close approximately 440 acres and result in the loss of 70 AUMs.

4.3.3.7 Alternative D

Impacts from Vegetation Direction: Generally, Alternative D would improve forage quality and quantity over the long term because there would be substantial increases in both vegetation and weed treatments (approximately 162,200 acres).

Alternative D would result in approximately 2,700 AUMs being temporarily unavailable in the first year following treatment and approximately 5,400 AUMs annually over the following nine years (**Table 4.3.3-1**). This reduction of AUMs represents 3-to-5% of the annual AUMs

available in the planning area and would not be a significant loss to the overall forage base as impacts on livestock grazing from vegetation treatments would be generally short term (two to three years). Temporary loss of AUMs in Alternative D would be about a 47-fold increase over Alternative A, a one-fold increase over Alternative B, and three-fold increase over Alternative C.

Impacts from Special Status Species Direction: Same as Alternative A.

Impacts from Wildland Fire Management Direction: Impacts would be similar to those in Alternatives B and C, except that more acres of WFU, approximately 468,900 acres for this alternative versus 265,000 acres in Alternative B and 212,600 acres in Alternative C, would be allowed. Therefore, the short-term impact of resting burned areas from livestock grazing and the long-term impact of improving forage conditions from post treatment would both be greater than in the other alternatives.

Impacts from Lands and Realty Direction: Approximately 60,700 acres would be suitable for disposal, which would cause a reduction of approximately 10,100 AUMs versus 5,400 AUMs and 32,200 acres identified in Alternative A. However, most land disposals and land exchanges would affect isolated tracts or checkerboard land ownership areas; so the loss of lands and AUMs would be minimal.

Impacts from Livestock Grazing Direction: In general, less acres and AUMs would be available to livestock grazing in this alternative. This is because an increased loss of available acres would result from increased land tenure adjustments. Of the 613,800 total acres of public land, approximately 527,820 acres would be available for livestock grazing and 85,980 acres would not be available. The amount of available grazing preference (active and suspended) would be approximately 81,070 AUMs for the planning area.

The acres and AUMs available in this alternative reflect the impacts of management direction from special designations, the BSD, lands and realty, and Fluid Minerals (oil and gas, and geothermal resources) development.

Implementing the Secretarial Order (Congressional Withdrawal #157, Idaho #9) for the BSD would remove 8,400 acres across 13 allotments (**Table 4.3.3-5**) and would result in a loss to preference of 1,400 AUMs (Section 2.6, Livestock Grazing). However, these 1,400 AUMs would be available for trailing purposes.

Impacts from Recreation Direction: Impacts would include those described in the *Impacts Common to All Alternatives*. In addition, areas designated as "Open" for intensive use such as rock crawling, and OHV use may be identified for use during the proposed travel management planning, which would conflict with livestock grazing to the point that the area may no longer be available. These areas would be 320 acres or less in size.

Impacts from Special Designations Direction: Grazing would be allowed to continue within the allotments with RNAs provided that the natural processes associated with RNAs, such as pristine vegetative and soil characteristics, are maintained (**Table 4.3.3-3**).

Livestock grazing within the Bancroft allotment would not be affected by the approximately 440-acre RNA designation for the Petticoat Peak area in this alternative. Therefore, there would be less scrutiny regarding maintenance of the pristine nature of the Petticoat Peak area.

4.3.3.8 Cumulative Impacts

The cumulative impacts discussion that follows considers the proposed alternatives in the context of the broader human environment, outside the scope described by the RMP. Its purpose is to determine if proposed actions would produce impacts within the planning area. For the purpose of this impact analysis, the gross land area within the planning area is considered, including BLM, Forest Service, Tribal and BIA, State of Idaho, and private lands.

Cumulative impacts on livestock grazing also take into account past, present, and future wildland fire management actions.

Past and Current Actions and Livestock Use Levels: An estimation of the trend of beef cattle and sheep numbers in each county during the period between 1986 and 2005 within the planning area was made using data from the National Agricultural Statistics Service (NASS). Only those counties that have a substantial portion of their acreage within the planning area were used. These included Bannock, Bear Lake, Bingham, Caribou, Franklin, Oneida and Power counties. Cassia and Bonneville counties were not included, since the majorities of those counties lie outside the planning area.

Beef cattle numbers rose from 89,100 head in 1986 to 94,400 head in 2005, which is an increase of 3%. Sheep numbers dropped from 42,500 head in 1986 to 27,700 head in 2005, which is a decrease of 21%. These numbers include those livestock that graze on the BLM, Forest Service, Tribal, BIA, State of Idaho, and private lands.

Table 4.3.3-7 illustrates that BLM- administered public lands contribute approximately 9% of the entire livestock grazing AUMs found within the planning area.

Table 4.3.3-7. Regional Comparison of Cattle and Sheep Grazing (AUMs and Percent) by Land Ownership.

Land Ownership	AUMs	Percent
BLM	91,400 [a]	9
USFS	104,000	10
Tribal & BIA	43,600	4
State of Idaho	77,900	8
Private	689,900	69
Total	**1,006,800**	**100**

[a] AUMs based upon total grazing preference (active and suspended use) for the Pocatello FO, which is not the same as licensed use.

Licensed grazing use for cattle on BLM-administered public lands within the planning area has increased from 61,600 AUMs in 1990 to 65,100 AUMs in 2005. The 16-year average licensed use for cattle is approximately 66,300 AUMs. Licensed grazing use for sheep has decreased from 8,700 AUMs in 1990 to 7,200 AUMs in 2005. The 16-year average licensed grazing use for sheep is 7,700 AUMs. Cattle AUMs increased 5% and sheep AUMs dropped 17%.

Cattle AUMs within the Caribou National Forest, including that portion of Cache National Forest within the planning area, remained constant and sheep dropped slightly during the period between 1985 through 2000. Cattle AUMs used in 1985 were just over 60,000 and increased to

approximately 64,000 in 2000. Sheep AUMs used in 1985 were approximately 44,000 and declined to just fewer than 40,000 in 2000 (BLM 2003f).

Cattle grazing on approximately 302,500 acres of the Fort Hall Indian Reservation Tribal- and BIA-managed lands using approximately 43,600 AUMs have remained relatively constant for the last 15 years (Denney 2006).

Approximately 77,900 AUMs are consumed by livestock on lands controlled by IDL (P. Brown, personal communication, April 13, 2006).

The current total number of AUMs used on private land is estimated to be 689,900 (651,700 for cattle and 38,200 for sheep). It was expected that livestock remained on private land 7 months and other lands the remainder of the year.

The trend appears to be a static-to-slight increase in cattle numbers with a decline in sheep numbers throughout this geographic area. The reason for the steady to-upward trend for cattle is likely due to relatively stable beef prices in relation to production costs. The decline in sheep numbers is likely attributed to the difficulty in trailing through multiple jurisdictions, high operation costs, and foreign competition. Sheep operations generally require the ability to trail sheep into different areas throughout the seasons. This has become more difficult due to the fragmentation of trailing routes, which resulted from the sale of land, conflicts with other uses and the expenses associated with trailing such as herding, water hauling, supplemental feeding and trucking costs. Increased competition with foreign markets is also suspected to have had an impact on the US sheep market.

Future Actions: Potential cumulative impacts on livestock grazing would occur from a combination of activities and land uses occurring on public lands within the planning area (**Table 4.3.3-1**). Such impacts would result primarily from surface-disturbing and disruptive activities, human disturbance, and the presence of wildlife, particularly sensitive species. These activities would result in livestock displacement and direct removal and indirect degradation of forage. Reclamation efforts and vegetation treatments would reduce impacts on livestock grazing in the long term, but roads, mines, and the presence of humans and wildlife would result in long-term or permanent impacts.

On public lands, the greatest impacts on livestock grazing would derive from the requirements for brood rearing and nesting habitat for sharp-tail and greater sage-grouse followed by those for winter habitat for big game. These impacts would occur in all alternatives and would affect a majority of the planning area, excluding timbered areas. Approximately 221,200 acres of key greater sage-grouse habitat and 442,700 acres of Columbian sharp-tailed Stronghold Habitat, important for brood rearing and nesting for grouse, occur on over two-thirds of public lands within the planning area. In addition, 188,100 acres of deer winter range and 98,400 acres of elk winter range also occur within the planning area. These habitats all overlap. As discussed in all of the alternatives, various adjustments in grazing management and additional range improvements may be necessary. Also, limitations with regard to the kinds and locations of range improvements would be likely. Rangeland health would improve as a result of such changes in management, which, in turn, would improve forage quality for livestock grazing in the long term.

The next greatest impact on livestock grazing on public lands would be caused by land tenure adjustments resulting in public land leaving federal ownership. The amount of land to leave federal ownership would be highest in Alternative D, followed in order by Alternatives B, C and A. The action alternatives, B, C, and D, would possibly reduce the number of head of livestock, since less AUMs and public lands would be available for livestock grazing. The number of AUMs would increase from 86,900 in Alternative A to 87,500 in Alternative B and decrease to 86,600 in Alternative C and to 82,200 in Alternative D. It is likely, however, that some, if not the majority, of the public lands leaving federal ownership would continue to be grazed by livestock under private ownership and would not affect livestock grazing overall. Private ownership of these lands would remove the BLM's administrative requirements and costs and would reduce operating costs for the livestock operator.

Existing and future recreational activities would have far-reaching, indirect impacts due to the increasing demands of expanding populations. Site-specific "Intensive Use Open Areas," as large as 80 acres in Alternative B and 320 acres in Alternative D, could displace livestock. This direct impact, however, would not be as great as indirect impacts associated with recreational activities such as hunting, OHV use, biking, hiking and sightseeing throughout the planning area. Vandalism of range improvements, harassment of livestock, human caused fires, and open gates would occur throughout the planning area as recreational activities increase. The travel management plans would impact livestock grazing throughout the PFO by restricting OHV travel, especially in Alternatives B and C.

Elimination of grazing allotments within the BSD in all the action alternatives, B, C, and D, would add to the impacts on livestock grazing by reducing grazing preference on the public lands and possibly reducing the number of head or AUMs throughout the Blackfoot River corridor. However, livestock trailing would continue and would no longer be competing with allotted grazing. Issues facing grazing associated with the Blackfoot River riparian area would be reduced and more easily addressed since trailing would be limited and more readily controlled versus preference grazing within allotments. In Alternative A, allotments would remain; and grazing and trailing along the Blackfoot River would be required to meet the riparian standards for rangeland health and PFC. Adjustments to grazing such as fencing, reduced stocking rate, and changes in season of use may be necessary for some or all the allotments along the river. These adjustments would add to the cumulative impacts associated with other actions.

Future minerals and energy and Fluid Mineral development projects within the planning area would also contribute to cumulative effects, on a site-specific basis. However, the acres involved would be less than 2% of the planning area and of little consequence to livestock grazing by themselves. Minerals and energy development and the related construction of pits, facilities, roads, pipelines, and well pads would be the primary cause of direct forage removal and weed proliferation. Impacts on forage resources and subsequently on livestock operators would be more severe in the eastern portion of the planning area, where phosphate development is occurring. Implementing the BLM's mitigation guidelines, restrictions on surface use, continued implementation of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a), vegetation treatments, and monitoring efforts would help ensure adequate, self sustaining forage resources on federal lands and lands with federal subsurface minerals that are impacted by exploration and development. The Idaho Standards would also help reduce the overall effects on livestock grazing operations. Reclamation efforts

associated with mineral activities could impact livestock grazing in the long term by adding to the forage base.

As described in each alternative, vegetation treatments could affect livestock grazing by reducing forage available in the short term. This combined with other management directions would have cumulative effects on livestock grazing. For the short term, Alternative A (reduction of 120 AUMs after the first year) would cause the least impact while Alternative D (reduction of 5,400 AUMs after the first year) would cause the greatest impact (**Table 4.3.3.1**). However, fewer acres treated in the long term would not increase forage for livestock grazing because less acreage would move towards LHC-A. This would make more acres prone to wildland fire and noxious weed and invasive, nonnative plant infestation on all lands within the planning area. Also, forage quality and quantity would decline. Alternatives B and D would have the most acres treated and would have the greatest impact on livestock grazing over the long term by improving rangeland health and forage conditions.

Another action that would cause a cumulative impact involves eliminating livestock grazing within the RNAs in Alternative C.

The cumulative impacts associated with the various resources and use management directions in Alternatives B, C and D would result in reductions in acres and AUMs available to livestock grazing from those in Alternative A. **Table 4.3.3-8** illustrates the direct impacts on livestock grazing that these reductions would cause.

The cumulative impacts associated with plan direction may also affect livestock grazing on all public lands if changes in livestock management would not be possible, and adjustments in livestock grazing would be necessary. **Table 4.3.3-9** illustrates how public land acres could be impacted across alternatives. Please note that the plan direction with the greatest impact, by resource, is paraphrased below.

The area of grouse and big game habitat potentially affecting livestock grazing on BLM-managed lands would total approximately 459,900 footprint acres, or would range from 80-to-87%, of all public grazing lands, depending on the alternative. The end result would be increased management requirements that would raise operation costs. These costs may be such that grazing operators would no longer graze public lands. Therefore, operators would be required to sell livestock to compensate for the loss of public lands grazing, look for other sources for pasture, grow additional hay, or keep livestock on their own private land.

Table 4.3.3-8. Public Land Acres and AUMs Unavailable on a Permanent or Temporary Basis Due To Resources/Uses Management Direction By Alternative

Resources/ Uses	Alternative															
	A				B				C				D			
	Permanent Unavailable		Temporary Unavailable		Permanent Unavailable		Temporary Unavailable		Permanent Unavailable		Temporary Unavailable		Permanent Unavailable		Temporary Unavailable	
	Acres	AUMS	Acres	AUMS	Acres	AUMS	Acres	AUMS	Acres	AUMS	Acres	AUMS	Acres	AUMS	Acres	AUMS
Vegetation Treatments	0.0	0.0	3,400	120 per yr [1]	0.0	0.0	124,300	4,100 per yr[1]	0.0	0.0	54,900	1,800 per yr. [1]	0.0	0.0	162,200	5,400 per yr.[1]
Lands and Realty (Land Tenure Adjustments)	16,100	2,700	0.0	0.0	28,150	4,700	0.0	0.0	24,950	4,200	0.0	0.0	60,700	10,100	0.0	0.0
Livestock Grazing	0.0	0.0	0.0	0.0	330	1,460	0.0	0.0	7,500	2,760	0.0	0.0	0.0	1,400	0.0	0.0
Minerals and Energy	780	130	1,330	160	780	130	1,330	160	780	130	1,330	160	780	130	1,330	160
Special Designations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	730	120	0.0	0.0	0.0	0.0	0.0	0.0
Withdrawals, Recreation Sites, etc.	24,500	0.0	24,500	0.0	24,500	0.0	24,500	0.0	24,500	0.0	24,500	0.0	24,500	0.0	24,500	0.0
Total	**41,380**	**2,830**	**29,230**	**280**	**53,760**	**6,290**	**150,130**	**4,260**	**58,460**	**7,210**	**80,730**	**1,960**	**85,980**	**11,630**	**183,030**	**5,560**
	Permanent Available				**Permanent Available**				**Permanent Available**				**Permanent Available**			
	Acres		**AUMs**		**Acres**		**AUMs**		**Acres**		**AUMs**		**Acres**		**AUMs**	
	572,420		89,870		560,040		86,365		555,340		85,550		527,820		81,070	

[1] AUMs identified per year based upon the assumption of 2 years of rest following treatment

Table 4.3.3-9. Public Lands Acres of Livestock Grazing Potentially Impacted By Plan Direction By Alternative

Resource Direction	Alternative			
	A	B	C	D
Fish and Wildlife: Maximum of 20% utilization on shrubs by livestock in big game winter range	246,900	246,900	246,900	246,900
Special Status Species: Nesting and brood rearing habitat requirements for sensitive grouse species and buffer zones around leks	335,600	335,600	335,600	335,600
Wildland Fire Management: Wildland Fire Use	0.0	265,000	212,600	468,900

4.3.3.9 Tribal Treaty Rights and Interests

It is unlikely that such interests would affect the management objectives described in each of the alternatives since the BLM consults with tribes on projects affecting treaty rights on public lands. The BLM would continue to solicit input from tribes on future projects, which would at least reduce, if not eliminate, the effect on livestock grazing management.

The tribes would be allowed to exercise their treaty rights to graze livestock on public lands within the ceded boundary, in conformance with the livestock grazing regulations.

4.3.4 MINERALS AND ENERGY

4.3.4.1 Summary

Management direction identifies public lands that are open, closed, administratively unavailable, or otherwise restricted to minerals and energy development for each alternative (**Table 4.3.4-1**). In all alternatives, most public lands would be open for the consideration of minerals and energy development. Resource issues since the Draft RMP/EIS has changed Fluid Minerals Leasing and development management direction. Under Alternative B, to enhance protection of the sagebrush steppe, which is habitat for the greater sage-grouse and sharp-tailed grouse and other sensitive species, approximately 258,100 acres in the Curlew area would be identified as administratively unavailable for Fluid Mineral Leasing.

However, because deposits of valuable minerals are rare, there would be only a few unique areas where exploration and development would occur. Closing lands to leasing, permitting, or the locating of mining claims would render any valuable mineral deposit inaccessible for the duration of the closure. In all alternatives, guidance would protect or mitigate impacts on other resources or land uses from minerals and energy development impacts. In general, management direction that restricts minerals and energy development activities would tend to add cost and delay while also increasing the complexity of permitting and the logistical operation of these activities.

Table 4.3.4-1. Comparison of Mineral and Energy Indicators in Approximate Acres by Alternative

Indicator	Alternative			
	A[11]	B	C	D
Public Lands Available to Minerals and Energy Development (of 613,800 Acres Total Field Office)				
Open to Fluid Minerals Leasing[1]	602,600	344,500	602,600	602,600
Open to Solid Minerals Leasing[2]	591,200	582,400	582,400	597,500
Open to Mineral Materials Disposal[3]	581,100	582,400	544,800	597,500
Open to Locatable Minerals Development[4]	582,600	564,900	564,900	582,600
Public Lands Affected by Fluid Mineral Leasing Closures, Timing or Occupancy Restrictions[8]				
Wilderness Study Areas (Closure)	11,200	11,200	11,200	11,200
Lands with Timing (Seasonal Occupancy) Stipulations[5, 9]	227,400	83,700	196,300	226,300
Timing Stipulations in High Oil and Gas Potential Area[9]	45,700	39,900	14,900	44,600
Timing Stipulations in High Geothermal Potential Areas[9]	9,200	5,300	6,100	9,200
Lands with NSO Stipulations	314,000	226,000	347,300	315,300
Lands with NSO Stipulations in High Oil and Gas Potential Areas[9]	66,800	74,200	99,700	68,200
Lands Available for Leasing in High Oil and Gas Potential Areas	116,900	116,900	116,900	116,900
Lands with NSO Stipulations in High Geothermal Potential Areas[9]	8,200	8,200	11,400	8,200
Lands Available for Leasing in High Geothermal Potential Areas	18,900	15,000	18,900	18,900
Other Key Plan Direction Impacting Minerals and Energy[6]				
Fluid Mineral Leasing[6]				
Administratively Unavailable (Curlew area)	0	258,100	0	0
Soda Springs Hills Management Area NSO[10]	11,300	18,700	18,700	12,700
Bear Lake Plateau/Sheep Creek Hills NSO[10]	19,300	19,400	44,800	19,300
Sensitive Plant Habitat NSO[10]	1,900	1,500	3,300	1,900
Solid Mineral Closures[6]				
Soda Springs Hills Management Area	0	18,700	18,700	3,600
Petticoat Peak RNA	0	400	400	0
Bowen Canyon Eagle ACEC	2,300	2,300	2,300	0
All RNAs	1,500	1,900	1,900	0
All ACECs	9,900	0	0	0
Rights-of-Way				
Avoidance Areas	30,700	1,900	1,900	0
Exclusion Areas	20,200	21,900	21,900	23,800
Land Tenure Adjustments				
Zone 3 (Consolidate)	n/a	141,000	94,200	423,000
Zone 4 (Disposal)	32,000 [7]	56,300	49,900	121,400

[1]Includes oil, gas, and geothermal resources.
[2]Primarily phosphate.
[3]Primarily sand, gravel and stone.
[4]Minerals not leasable or Salable (Mineral Materials), primarily metallic and specialty industrial minerals.
[5]Applies primarily to all mineral exploration activities, but also to development activities if necessary.
[6]Table totals do not reflect Chapter 2 totals as not all closures and NSO are shown, closures may vary by mineral type (Locatable, solid leasable, Mineral Material), See specific plan direction in Chapter 2.
[7]Land tenure adjustment zones do not apply to Alternative A. This acreage figure is for specific parcels of public lands as identified for disposal in Alternative A.
[8]Where Alternative B Fluid Mineral Leasing closure/administratively unavailable areas overlap with timing or NSO restrictions, closure/unavailable would apply. Where NSO overlaps timing restriction, NSO would apply.
[9]Overall, these restrictions cover approximately 439,000 acres, or 72% of public lands administered by the PFO. Where they overlap, Fluid Mineral leasing closures, administratively unavailable, or NSO lease stipulations would override timing restrictions. **Tables 4.3.4-2** and **4.3.4-3** show by alternative the acreages with timing restrictions that lie outside the more restrictive NSO, administratively unavailable, and closure areas. Depending on the alternative, timing restrictions would be applied on 58,700 to 227,400 acres that lie outside these highly restricted areas.
[10]Numbers represent total footprint acres of NSO within the listed areas.
[11]In the PFO planning area, oil and gas leasing is conducted programmatically within the boundaries of the former Pocatello Resource Area under a 1988 ROD. Actions under Objective A-ME-2.1 reflect the ROD mandates. Oil and gas leasing within the former Deep Creek Resource Area and geothermal leasing within the entire PFO planning area are not conducted on a programmatic basis but are conducted on a site-specific, case-by-case basis using appropriate individual NEPA analyses and decisions. Actions under Objective A-ME-2.1 are the typical project restrictions considered in developing leasing stipulations aimed at providing the framework of environmental mitigation measures. Action items under this Alternative A Objective were standardized to reflect the existing approach for oil and gas leasing within the PFO planning area within the former Pocatello Resource Area and the general approach for Fluid Minerals Leasing elsewhere. This allows for easier comparison among the alternatives. Acreage amounts shown under Alternative A reflect the areas currently restricted programmatically or likely to be restricted in individual Fluid Mineral lease applications. See Objective A-ME-2.1 in Chapter Two.

In all alternatives, Fluid Minerals leasing would be conducted as described in **Appendix H - Fluid Minerals Leasing, Terms, and Stipulations**. General guidance for lease activities would be contained in timing and surface occupancy restrictions that would be included as stipulations to the standard lease terms and conditions. Consideration of leasing on a programmatic basis would allow for a streamlined leasing process. This would provide consistency and efficiency in applying appropriate surface occupancy and timing restrictions, thus facilitating future Fluid Minerals exploration and development. The leasing of Fluid Minerals resources commits a resource for possible future development but does not directly create or result in any surface disturbance or authorization to conduct exploration and development.

Once a Fluid Mineral lease is issued, on receipt of an exploration plan, such as geophysical exploration that involves surface disturbance or an application for permit to drill (APD), further NEPA analysis would take place before exploration or development is authorized. Such NEPA analysis would result in the development of site-specific environmental protection measures or alternatives to the proposed activities.

Besides closing some lands to minerals and energy use, management direction for all alternatives would require minerals and energy exploration and development operators to apply mitigation measures to reduce impacts on other resources and resource uses. These measures could increase costs and reduce the profitability of operations. In many cases, these would be considered typical costs of doing business on public lands. However, any increase in cost would potentially impact minerals and energy development. Higher costs may increase the sales price that operators charge purchasers, may limit mineral development to only the more profitable portions of a mineral deposit, or may reduce the overall amount of exploration and development. In some cases, increased costs could cause a particular proposal to not be economically feasible and development actions may be dropped.

Management direction in all alternatives that would tend to result in delays, increase risk, and increase costs to minerals and energy development include applying BMPs (e.g., weed control, soil erosion and loss, selenium/contaminant control), meeting visual resource objectives, setting reclamation standards, applying operational standards and guidelines, reducing soil loss and stream sedimentation, avoiding or salvaging cultural sites, designating NSO for Fluid Minerals leasing activities, applying timing or season-of-use restrictions, salvaging and protecting certain paleontological resources, and identifying special management areas.

Within the planning area, some areas would be closed and mineral recovery would not be allowed. This includes WSAs (except Locatable Minerals), certain cultural and prehistoric sites (less than 0.2% of public lands), and surface protection buffer zones around fish-bearing streams. There is no impact anticipated to important minerals and energy resources from this management direction, except for a potential impact on some Mineral Materials disposal.

Approximately 11,200 acres (2%) of public lands are designated as VRM Class I; and approximately 78,600 acres (13%) are designated as Class II. Minerals and energy activities within these areas would require mitigation and special project considerations that would tend to add to overall project costs.

Under all alternatives, timing restrictions to protect plants and animals may affect minerals and energy exploration activities on public lands open to Fluid Minerals in High oil and gas and

geothermal potential areas. Such restrictions range from 21,000 acres, identified under Alternative C, to 359,700 acres, identified under Alternative A. Areas closed or administratively unavailable to Fluid Mineral Leasing and areas where NSO stipulations would be applied to new Fluid Mineral leases range from 226,300 acres under Alternative D to a maximum of 495,200 acres under Alternative B. Alternative C would impose these restrictions on 358,500 acres. Waivers, exceptions, or modifications to a Fluid Mineral lease NSO stipulation would continue to subject the lease to designated timing restrictions. Waivers, exceptions, or modifications (**Appendix H**) authorized in suitable instances would tend to reduce these total acreages and would reduce the impacts on exploration activities. NSOs and areas closed or administratively unavailable to Fluid Mineral Leasing (which vary by alternative) would supersede these timing restrictions. Discussed below, by alternative, is acreage with wildlife habitat having timing restrictions that lie outside the Fluid Mineral closure and NSO areas.

The 500-foot surface disturbance buffer from perennial streams for Fluid Mineral exploration and development contained in **Appendix H** would not likely impact operations. Fluid mineral NSO restrictions to protect special status plants, fauna, and other resources would affect Fluid Minerals exploration activities on public lands. NSO areas larger than 640 acres in size would impact the ability of lessees to recover Fluid Minerals resources. An NSO stipulation could also reduce the value of a Fluid Minerals lease. Waivers, exceptions, or modifications to timing lease stipulations (**Appendix H**) authorized in suitable instances would tend to reduce these total acreages and would reduce the impacts on development and the value of the Fluid Minerals lease.

Although Alternative C is the alternative that emphasizes resources over source uses and applies restrictions on land uses, Alternative B has been modified since the Draft RMP was released. It is more restrictive for Fluid Mineral Leasing and development than that in the Draft RMP/EIS. Under Alternative B, 258,100 acres would be administratively unavailable to Fluid Mineral Leasing in the Curlew area. This is in addition to 11,200 acres of WSAs that are currently closed (Alternatives A, C, and D). This limitation on leasing protects sagebrush steppe, which provides habitat for greater sage-grouse and sharp-tailed grouse, sensitive species, and wildlife.

NSO stipulations would be applied under all alternatives and to similar areas (e.g., withdrawals, administrative designations, erosive soils, and steep slopes). Alternative A would have the least acres with an NSO stipulation, while Alternative C would have the most. Alternative B has fewer acres with an NSO stipulation than Alternatives C and D because an NSO stipulation would not apply to closed (WSAs) or administratively unavailable areas (Curlew area). Alternative B provides the greatest overall surface protection (NSO stipulations, closed areas, and public lands administratively unavailable) 495,200 acres, compared with Alternatives A, C, and D, which are 325,200, 358,500, and 326,500 acres, respectively.

Under Alternative B, the Curlew area is administratively unavailable for Fluid Mineral Leasing. Few impacts are anticipated to development of oil and gas resources because the resource potential in the area is Low. However, public lands identified as administratively unavailable for Fluid Mineral Leasing could impact geothermal development and use of 3,900 acres with High potential and 69,100 acres with Medium potential in the area.

Management direction for conducting minerals and energy reclamation and other activities on lands where the surface is not managed by the BLM would ensure good coordination with the

surface management agency/owner and would provide more consistent and uniform direction to operators. Operators would be able to plan better and execute reclamation plans. Regulators would have guidance with which to judge the suitability of reclamation proposals and reclaimed lands.

Split-estate management direction outlined in Objective AA-ME-2.1 and the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would be applied as mineral operation guidelines and reclamation standards for minerals and energy operations under Alternatives B, C, and D. Applying similar mitigation to private lands that overlie federal mineral estate reduces indirect effects of Mineral Leasing and development on split-estate lands. In AA-ME-2.1.4, the plan provides for surface owner input in formulating appropriate mitigation measures to ensure that surface rights are not infringed on. It is anticipated that application of the Idaho Standards for Rangeland Health would not result in significant additional costs to minerals and energy developers on public or split-estate lands since reclamation requirements already exist. The Idaho Standards for Rangeland Health would provide both government regulators and minerals and energy operators clear reclamation direction and objective criteria from which to design reclamation and measure the adequacy of final reclamation. The application of Idaho Standards for Rangeland Health may also reduce costs in the long term by setting clear direction in the beginning and avoiding situations where reclamation would be judged inadequate and would have to be revisited in the future.

In addition to the Idaho Standards for Rangeland Health, operational standards and guidelines are also provided for minerals and energy operations in Alternatives B, C, and D to protect hydrologic function and surface resource values and to prevent the release of contaminants into the environment. Impacts on minerals and energy operations derived from applying this management direction could result in operators having to expand or modify reclamation activities. This could add to the overall operational costs and complexity.

Alternatives B, C, and D would also use action levels to set concentration release standards primarily for the reclamation of phosphate mines where selenium and other contaminants are known to be problematic. The standards assist operators and regulators in determining when reclamation is complete or if contamination exists that requires further reclamation or remediation. Having established standards should assist mining companies that are considering mining phosphate. These standards would aid in designing adequate mining and reclamation plans, which would have satisfactory mitigation practices to reduce the possibility that contaminants would be released into the environment.

There would be no impacts on minerals and energy resources identified by the designation of the 400 acre Petticoat Peak RNA proposed in Alternatives B and C. The area is currently within the boundaries of a WSA where minerals and energy resource leasing and permitting are not currently allowed except for Locatable Minerals, which must meet non-impairment standards.

Alternative C would provide the greatest protection to sensitive plant habitat, approximately 3,300 acres (including quarter-mile buffer zones) from Fluid Minerals Leasing with an NSO stipulation and closed to consideration of Mineral Materials disposal. The NSO would not likely impact the development of Fluid Minerals because the areas are small, and Mineral Materials could be used elsewhere.

Alternatives B and C would propose to withdraw the most land from the locating of mining claims, primarily in the Soda Springs Hills Management Area. There is the potential that high-grade, Locatable limestone exists in the Soda Springs Hills. Alternatives A and D would not propose additional withdrawals.

Alternatives A and D would be the most amenable to the disposal of Mineral Materials, such as sand, gravel, and stone, as power site, water, and other land withdrawals are designated open to consideration of Mineral Material disposals. Opening these lands would allow for the disposal of Mineral Materials in cases where use would not impact the purpose for the withdrawal.

Alternative D would identify no areas that would be excluded from the consideration of LUAs as part of a minerals and energy exploration or development proposal. However, Alternatives A, B, and C identify fewer acres as LUA avoidance areas. It is not anticipated that there would be an impact on minerals and energy uses by management direction for LUAs in any alternative.

Alternatives D and A would propose to dispose of the most acreage of public lands. As BLM policy directs that the mineral estate be disposed of with the surface in most cases, these alternatives could transfer the most minerals out of federal ownership.

4.3.4.2 Methods of Analysis

Indicators. The criteria for analyzing alternatives are referred to as indicators. The following indicators were selected for a comparative analysis of each alternative:

- The amount of public lands managed by the PFO, in approximate acres, that are open, closed, or restricted to Mineral Leasing, permitting, and mining claim location. Also included are season-of-use and surface occupancy restrictions imposed by the BLM on Fluid Minerals leases on those lands. The potential for valuable minerals to occur on those lands is also considered.
- The amount of land in approximate acres that is estimated to be impacted by minerals and energy development activities conducted under mineral lease, permit, or mining claims.
- In some cases, such as phosphate, tons and value of ore that may be affected.

Methods and Assumptions. The following definitions apply to the analysis of impacts on minerals and energy resources:

- Fluid Minerals (oil and gas and geothermal resources) are typically leasable. Solid Minerals are those that are normally extracted by mining excavation and are categorized by the BLM as Locatable, leasable, or Mineral Materials (Salable minerals). For analysis purposes, the term “Fluid Minerals” refers to oil and gas and geothermal resources, “Solid Minerals” refers to Mineral Materials, Solid Leasable Minerals, and Locatable Minerals.
- Fluid mineral potential is rated High, Medium, Low, and None for oil and gas resources (**Figure 3-15**). Development potential at the present for oil and gas is considered Low because past drilling has not yet uncovered any significant discoveries. A discovery would change the potential for development immediately.

- The potential for geothermal resources is quite High in this portion of the Rocky Mountains that includes the planning area. Because of this, ratings of High, Medium, and Low applied to geothermal resources in this analysis are used in a more relative fashion than the same ratings applied here to oil and gas resources. Development potential has increased to moderate due to recent rises in the electrical energy costs. Development potential will not likely increase significantly more within the PFO until northwest US wholesale electricity prices (currently some of the lowest in the country) increase to the higher levels currently seen elsewhere in the US.
- "Exploration" is the process of searching for minerals before development. Exploration activities include (1) geophysical and other surveys, (2) drilling, trenching, and using other mechanical means to locate or delineate mineral bodies. Exploration enables the operator to determine whether to proceed with development and production.
- "Development" consists of the activities that follow exploration, including the installation of facilities, the drilling and completion of wells for Fluid Minerals production, mining and extraction of minerals, preparations made for mineral production, and mineral production activities. Development may include some aspects of production.
- "Production" is that phase of mineral operations that involves extraction, separation, treatment, and the preparation for delivery to market and the processing plant.
- "Operations" includes all activities related to exploration, development, and production that cause surface disturbance. Reclamation activities are considered to be part of the mineral operations.
- "Directional drilling" refers to a technique where drilling occurs at an angle from the vertical by deflecting the drill bit. Directional wells are drilled from a remote site to develop Fluid Minerals in otherwise inaccessible locations. The operator incurs additional expense with directional drilling.

The following assumptions are required to facilitate the analysis of proposed management direction. They were developed based on IDT knowledge of minerals and energy resources, the project area, review of existing literature, and information supplied by other agencies. RFDS have been developed for Fluid Minerals and are presented in **Appendices Q** (Oil and Gas) and **R** (Geothermal Resources). The potential development of solid minerals (Mineral Materials, Locatable minerals, and solid leasable minerals) is discussed in Chapter 3.

These assumptions should not be construed to confine or redefine minerals and energy management alternative goals and objectives. They may be used to allow for a qualitative comparison of alternatives when quantitative data are not available. The impact analysis for minerals and energy resources is based on the following assumptions:

- Several oil and gas geophysical plans would be approved in the next 20 years. They would use existing roads or overland travel with little-or-no blading for road construction. This would result in minimal surface disturbance. If applications were submitted that involved more disturbance than this, additional NEPA analysis would be conducted at that time.
- Approximately 50-100 oil and gas leases would be issued between now and 2025, but most would not be impacted by exploration or development operations. Approximately 5

oil and gas exploration wells may be drilled on some of those 50-100 leases. On average, each site would disturb approximately 25 acres, for a total of approximately 125 acres of temporary disturbance. It is anticipated that all of the approximately 125 acres would be reclaimed. The exploration drilling would most likely occur in the Bear Lake Plateau area, but it may occur within any of the High potential area shown in **Figure 3-15**.

- One oil and gas well would encounter hydrocarbons in sufficient quantities to warrant field development. Based on this discovery, a five-well field would be developed, producing 1,000 barrels of oil per day. Disturbance for additional roads, pads, pipelines, and storage tanks would total approximately 60 acres. It is anticipated that all of the approximately 60 acres would be reclaimed in the long term, after production activities are completed. Total disturbance from exploration, development, and production is estimated to be 185 acres.
- The probability of full oil and gas field development and production occurring in southeastern Idaho during the next 20 years is considered Low.
- The PFO would process 10-50 geothermal lease applications and 3 geothermal exploration proposals during the next 20 years impacting approximately 87 acres. Impact analysis assumes that one of the geothermal properties would transition to a development/production phase involving approximately 42 acres of surface disturbance. It is anticipated that all impacted areas would ultimately be reclaimed. Total disturbance from exploration, development, and production is estimated to be 129 acres.
- Phosphate is known to exist within Known Phosphate Leasing Area. Areas outside of Known Phosphate Leasing Areas, within one mile of the boundary, have a moderate potential for the occurrence of economically recoverable phosphate ore. There is Low potential for valuable phosphate outside this area.
- Issuance of approximately two new phosphate leases encompassing about 800 acres each and several enlargements of existing leases (fringe leases or lease modifications).
- Approximately 5,252 acres of land may be impacted by phosphate mining in Caribou County, approximately 479 acres of which would consist of public lands. The remainder would be National Forest System, State of Idaho, and private lands. All lands would be reclaimed except for approximately 6% that consist of residual high walls and other areas not able to be reclaimed such as some portions of empty pits.
- The need for Mineral Materials such as sand and gravel is expected to increase slightly due to an expanding population base in southeastern Idaho. Much of this need can be met by private sources, but the PFO would continue to address the need for Mineral Materials for road and highway projects and other construction uses by issuing approximately 23 free use permits to primarily government entities and about 8 fair market value sales to private entities by auction or negotiated sales.
- Dimension sandstone (Mineral Materials) would be sold from one or two small quarries on public lands most likely northeast of Bear Lake in and around the BLM's existing Bear Lake community pit.
- Mineral Materials presently available for public use would be depleted at the Marsh Valley Community Pit. It is estimated that one or two additional pits would be designated for making small sales to the public. Another Common Use Area could be designated that

would allow small amounts of rock and boulders to be sold and gathered with little-or-no surface disturbance.

- An estimated 34 Mineral Materials permits may impact approximately 333 acres of which approximately 233 acres would be reclaimed and approximately 100 acres would not be reclaimed due to high walls, residual gravel surfaces, etc. Most of these areas would be in the alluvial valleys and foothills discussed in section 3.3.4.4 and shown in **Figure 3-14**.
- Location of mining claims, submittal of Notices of Intent and Locatable Minerals mining PO are expected to occur at levels similar to the past. The PFO anticipates receiving 10 Notices to explore for Locatable Minerals and 1 PO for mining. Primary minerals of interest include specialty industrial minerals such as high calcium limestone and zeolites and, to a lesser degree, precious and other metals such as gold, silver, and copper. The filing and holding of mining claims is anticipated to occur at a rate similar to that of the present. The estimated total surface disturbance for Locatable Minerals exploration and development would be approximately 105 acres. Approximately 83 acres would be reclaimed and approximately 22 acres would not be reclaimed due to the bare rock nature of an abandoned limestone quarry or other type of open pits.
- The anticipated locations of exploration and development activities conducted under Notices or POs are in the Soda Hills of northern Oneida County and other areas shown as having Locatable Minerals occurrences in **Figure 3-16** and described in Section 3.3.4.3.
- Surface resources on split estate lands are not directly controlled or managed by the BLM. Impacts on these resources resulting from the development of the federal mineral estate would be mitigated to the extent required by law, as directed by BLM policy and according to the land use plan, as practical.
- Most additional site-specific protection and mitigation measures appropriate for an individual Solid or Fluid Minerals exploration or development operation would be developed at the operations plan review stage.
- In accordance with current BLM policy, land tenure adjustments resulting in the disposal of public lands would typically include disposing of the mineral estate in addition to the land surface. This would prevent a situation of split estate and would eliminate conflict with surface use arising from any future mineral development.

In all alternatives, Minerals and Energy direction would not be affected by Air Quality, Wildland Fire Management, Forestry, and Livestock Grazing so these resources and resource uses are not further addressed under this section.

4.3.4.3 Impacts Common to all Alternatives

Impacts from Cultural Resources Direction: The approximately 2,100 acres that comprise the Historic Railroad Grade, Blackrock Canyon, and Historic Trail Segments and the approximately 6,300 acres of sensitive areas (Prehistoric Areas A-G, Upper Valley, and Bear Lake Plateau) with NSO stipulations for Fluid Minerals would not affect the ability to explore and develop Fluid Minerals. Any potential oil and gas targets could be reached by directional drilling techniques from drill rigs located off-site of the cultural resource.

These areas are outside of the High potential oil and gas area and are small enough to allow for the recovery of any oil and gas by directional drilling methods. Due to the narrow nature of these corridors, Fluid Minerals exploration and development could proceed with minimal interference from NSO restrictions aimed at protecting high value cultural resources.

This acreage is a maximum of 0.2% of all acres open to Solid Minerals development. These sites contain primarily Mineral Materials such as sand and gravel that can be obtained elsewhere from public or private lands, so no Impacts on Solid Minerals development are anticipated.

Thus, it is anticipated that this closure would have little or no effect on the development of minerals and energy resources.

Impacts from Soils Direction: Site-specific conditions of approval for the conservation of soil would be developed when surface disturbance for any mineral lease, permit, or mining claim is proposed. Incorporating resource protections to ensure that soil loss is not more than 5 tons per acre per year would require minerals and energy exploration and development operations to employ erosion control, timely and effective reclamation, and other mitigation measures at all sites. This would add to the cost of operations, but is currently standard operating procedure at all sites. Operators would continue to use the measures such as the *State of Idaho BMPs for Mining*, the *BLM Gold Book*, and other state-of-the-art methods. Examples of sediment control and reclamation BMPs are contained in **Appendix C**.

Impacts from Paleontological Resources Direction: Impacts on the development of minerals and energy resources would not likely occur from Paleontological Resources direction. Authorized minerals and energy development operations would be required to immediately bring to the attention of the Authorized Officer any discovery of paleontological resources. Activities affecting the discovery would be suspended immediately with the discovery left intact until the Authorized Officer is able to evaluate the discovery and take appropriate action to protect or remove the resource. In most cases, activities would not be suspended for an extended amount of time and impacts on minerals and energy development would not be great. In some rare cases involving significant paleontological resources, a pit might be closed or moved. One of the most likely situations would relate to fossil mammals, which are found in some unconsolidated sand and gravel deposits located in many of the alluvial valleys in the southern portion of the planning area.

Most paleontological resources associated with phosphate mining involve disarticulated fossil fish and invertebrates. In the vast majority of cases, these fossils are well documented and known to science from previous specimens. There may be instances where rare, unknown, or unusual fossils are uncovered by mining operations. The conditions of approval direct operators to contact the BLM for instructions regarding discovery of these types of paleontological resources.

Impacts from Vegetation Direction: Weed control activities would increase the cost to operate Solid Minerals projects such as a Mineral Materials sale.

RMP direction would require Solid and Fluid Minerals operations to perform invasive species/noxious weed control. This is a current and typical standard operating requirement that would not have any impact on minerals and energy development.

Impacts from Fish and Wildlife Direction: Tables 4.3.4-2 and **4.3.4-3** summarize **Appendix D** timing restrictions to protect important wildlife activities and habitat in oil and gas and geothermal resource potential areas. The restrictions would also apply to solid mineral exploration and development in some cases. Active raptor nesting and fledgling sites are also protected with a no-disturbance buffer zone ranging from ¼-½ mile in radius. Minerals and energy exploration and development activities would be restricted near riparian areas, as described in **Appendix E** (115- to 450-foot radius for cutthroat trout), **Appendix H** (minimum 500-foot radius for Fluid Minerals), and as appropriate, as determined by site-specific NEPA analysis at the implementation stage.

Overall, these restrictions cover approximately 439,000 acres, or 72% of public lands administered by the PFO. Closed areas, areas administratively unavailable, or an NSO lease stipulation would override a timing restriction. **Tables 4.3.4-2** and **4.3.4-3** also show by alternative the acreages with timing restrictions that lie outside the more restrictive NSO, administratively unavailable, and closure areas. Depending on the alternative, timing restrictions would be applied on 58,700 to 227,400 acres that lie outside these highly restricted areas. The actual number is somewhat larger than that shown in these tables, when considering the additional timing restrictions for raptor nesting. This large area of restriction is expected to increase solid and Fluid Minerals exploration and development costs and delays.

The window for conducting mineral exploration could be quite short in some areas due to a combination of multiple timing wildlife restrictions and heavy snows/intense winters sometimes experienced in southeastern Idaho. These restrictions applied to minerals and energy exploration activities may limit ability of minerals and energy lessees or permittees to obtain geologic information in a single season and could result in minerals and energy exploration programs being extended to two or more years. This could extend the length of time required to evaluate feasibility and prepare a development proposal. As the earliest wildlife restriction begins November 15 and the latest would end August 31, there are no areas within the planning area where multiple timing restrictions from wildlife would preclude any exploration drilling activities.

Timing restrictions could render some mining or Fluid Minerals production proposals impractical. Although exploration activities would typically have to meet timing restrictions outlined in **Appendix D**, the restrictions would not apply to the operation and maintenance of production facilities such as mining, geothermal generating operations, and oil and gas production unless the findings of future project-level NEPA analyses demonstrate the continued need for such mitigation and that less-stringent, project-specific mitigation measures would be insufficient. This should allow application of mitigation measures that adequately protect wildlife resources and also allow for practical development of minerals and energy resources on public lands.

Table 4.3.4-2. Approximate Acres of Timing Restrictions from Fish and Wildlife and Special Status Species for Oil and Gas Resources on Public Lands

	Alternative			
Resource Restriction Stipulation by Oil and Gas Potential Area	**A[1]**	**B[1]**	**C[1]**	**D[1]**
Big Game Winter Range Restriction				
High Potential	39,700	34,300	12,500	36,600

Table 4.3.4-2. Approximate Acres of Timing Restrictions from Fish and Wildlife and Special Status Species for Oil and Gas Resources on Public Lands

Resource Restriction Stipulation by Oil and Gas Potential Area	Alternative			
	A[1]	B[1]	C[1]	D[1]
Medium Potential	22,700	21,000	22,700	22,700
Low Potential	60,000	11,900	60,000	60,000
No Potential	3,200	3,200	3,200	3,200
Elk Calving Protection				
High Potential	1,100	1,100	1,100	1,100
Medium Potential	0	0	0	0
Low Potential	700	700	700	700
No Potential	0	0	0	0
Fawning Protection Restriction				
High Potential	4,900	4,300	4,200	4,800
Medium Potential	4,700	4,300	4,700	4,700
Low Potential	4,200	3,200	4,200	4,200
No Potential	0	0	0	0
Greater Sage-Grouse Winter Range				
High Potential	9,000	9,000	0	9,000
Medium Potential	3,500	200	3,500	3,500
Low Potential	28,300	200	28,200	28,300
No Potential	0	0	0	0
Greater Sage-Grouse Leks				
High Potential	3,900	3,900	1,000	3,900
Medium Potential	0	0	0	0
Low Potential	10,000	100	10,000	10,000
No Potential	0	0	0	0
Greater Sage-Grouse Nesting and Brooding				
High Potential	31,200	29,000	5,500	31,200
Medium Potential	18,400	1,000	18,400	18,400
Low Potential	104,600	200	104,500	104,600
No Potential	0	0	0	0
Columbian Sharp-Tailed Grouse Winter Range				
High Potential	0	0	0	0
Medium Potential	3,300	1,600	3,300	3,300
Low Potential	16,100	300	16,100	16,100
No Potential	0	0	0	0
Columbian Sharp-Tailed Grouse Leks				
High Potential	0	0	0	0
Medium Potential	1,200	600	1,200	1,200
Low Potential	10,600	20	10,600	10,600
No Potential	0	0	0	0

Table 4.3.4-2. Approximate Acres of Timing Restrictions from Fish and Wildlife and Special Status Species for Oil and Gas Resources on Public Lands *(continued)*

Resource Restriction Stipulation by Oil and Gas Potential Area	Alternative A[1]	B[1]	C[1]	D[1]
Columbian Sharp-Tailed Grouse Nesting and Brooding				
High Potential	0	0	0	0
Medium Potential	4,500	2,500	4,500	4,500
Low Potential	33,400	20	33,400	33,400
No Potential	0	0	0	0
TOTAL FOOTPRINT[2]	**227,400**	**83,700**	**196,300**	**226,300**

[1]Timing restriction footprint acres, outside of Fluid Mineral closure and NSO areas that vary by alternative.
[2]The totals of acres do not reflect the sums of each column because some timing restrictions overlap each other spatially. Timing restrictions, considered collectively and under every alternative, consist of approximately 439,000 acres of PFO lands under each alternative. This includes lands both inside and outside areas closed, administratively unavailable for leasing, and where NSOs would be applied.

Table 4.3.4-3. Approximate Acres of Timing Restrictions from Fish and Wildlife and Special Status Species for Geothermal Resources on Public Lands

Resource Restriction Stipulation by Geothermal Resource Potential Area	Alternative A[1]	B[1]	C[1]	D[1]
Big Game Winter Range Restriction				
High Potential	9,000	5,300	5,900	9,000
Medium Potential	37,500	21,200	26,500	37,000
Low Potential	79,200	44,000	66,000	76,600
Elk Calving Protection				
High Potential	200	200	200	200
Medium Potential	100	100	100	100
Low Potential	1,500	1,500	1,500	1,500
Fawning Protection Restriction				
High Potential	100	100	100	100
Medium Potential	2,700	2,100	2,400	2,700
Low Potential	10,900	9,700	10,600	10,900
Greater Sage-Grouse Winter Range				
High Potential	900	900	0	900
Medium Potential	11,600	4,300	7,200	11,600
Low Potential	28,400	4,100	24,500	28,400
Greater Sage-Grouse Leks				
High Potential	30	25	0	30
Medium Potential	4,000	800	3,200	4,000
Low Potential	9,900	3,100	7,900	9,900
Greater Sage-Grouse Nesting and Brooding				
High Potential	6,900	3,000	3,900	6,900
Medium Potential	41,000	8,700	31,600	41,000
Low Potential	106,300	18,500	92,900	106,300

Table 4.3.4-3. Approximate Acres of Timing Restrictions from Fish and Wildlife and Special Status Species for Geothermal Resources on Public Lands *(continued)*

Resource Restriction Stipulation by Geothermal Resource Potential Area	Alternative			
	A[1]	**B[1]**	**C[1]**	**D[1]**
Columbian Sharp-Tailed Grouse Winter Range				
High Potential	100	60	100	100
Medium Potential	9,500	1,100	9,500	9,500
Low Potential	10,000	700	9,900	10,000
Columbian Sharp-Tailed Grouse Leks				
High Potential	200	0	200	200
Medium Potential	4,900	400	4,900	4,900
Low Potential	6,600	200	6,600	6,600
Columbian Sharp-Tailed Grouse Nesting and Brooding				
High Potential	970	0	970	970
Medium Potential	18,600	1,300	18,600	18,600
Low Potential	18,400	1,300	18,400	18,400
TOTAL FOOTPRINT[2]	**227,400**	**83,700**	**196,300**	**226,300**

[1]Timing restriction footprint acres, outside of Fluid Mineral closure, administratively unavailable, and NSO areas that vary by alternative.

[2]The totals of acres do not reflect the sums of each column because some timing restrictions overlap each other spatially. Timing restrictions, considered collectively and under every alternative, consist of approximately 439,000 acres of PFO lands under each alternative. This includes lands both inside and outside of areas closed, administratively unavailable for leasing, and where NSOs would be applied.

As described in **Appendix H**, an exception, waiver, or modification to Fluid Minerals lease stipulations may be approved, for a site-specific proposal, based on an analysis of the proposal and the need for the lease stipulation to be applied to the proposed activity. A lease stipulation waiver is a permanent exemption to a lease stipulation. A lease stipulation exception is a one-time exemption to a lease stipulation; exceptions are determined on a case-by-case basis. A lease stipulation modification is a change to the provisions of a lease stipulation either temporarily or for the term of the lease.

The record must show that circumstances or relative resource values have changed or the lessee must demonstrate that operations can be conducted without causing unacceptable impacts and that the less restrictive stipulations would protect the public interest. Compliance with the RMP must be maintained in any exceptions, waivers, or modifications to stipulations that are granted. Alternatively, the BLM could amend the RMP. If the authorized officer determines, prior to lease issuance, that a stipulation involves an issue of major concern, modification or waiver of the stipulation would be subject to public review (43 CFR 3101.1-4).

As described in **Appendix H**, a waiver, exception, or modification to lease stipulations would be approved if it could be demonstrated that the impacts of a proposed action can be acceptably mitigated such that the resource values of concern can be protected or that the impacts would be similar whether or not an exception were approved. This provision would allow Fluid Minerals lease exploration and development activities to proceed in cases where the standard stipulations are not necessary to protect fish and wildlife activities or habitat.

The 500-foot buffer zone from fish-bearing streams or live water would not affect Fluid Minerals development, as directional drilling could likely be accomplished off site. Current Locatable Minerals operations would not be affected, as none of them are located close to fish-bearing streams. Mineral Materials such as sand and gravel are often located adjacent to streams. These materials would not be retrievable unless mitigation measures could be developed to protect the stream.

Recovery of phosphate resources could be impacted near fish-bearing streams or live water. For example, a 300-foot buffer zone containing a phosphate resource on either side of a fish-bearing stream may contain as much as one million tons (600 feet total protected area) of phosphate rock. At average ore grade, this equates to $16 million, as valued by the US Minerals Management Service (unit value of $0.6061/% phosphorus pentoxide). In some situations, it may be cost effective to design extensive mitigation to avoid adverse impacts on fish-bearing streams and allow mining operations within 300 feet of the stream.

Impacts from Special Status Species Direction: Plan direction that requires protection of habitat and mitigation measures for "listed" species (e.g., Utah valvata snails) is standard practice and is also required under the ESA. Plan direction would have no additional impact on minerals and energy use and development over the existing condition.

There are three listed animal species and no listed plants in the planning area. Because of this, the action items required to protect these species are not anticipated to impact development of minerals and energy resources. There would be some instances where the avoidance of these species or their habitat and the application of mitigation measures would cause great impacts on a particular minerals and energy operation. In those cases, the BLM and the operator would consult with the USFWS regarding the measures that would need to be taken to adequately protect threatened and endangered species. These measures could result in added cost, delays, and, in some cases, would preclude economic minerals and energy development.

The amount of public lands managed by the PFO impacted by special status species timing restrictions to minerals and energy exploration is shown in **Tables 4.3.4-2** and **4.3.4-3**.

It is anticipated that the impacts on Fluid Minerals leases from timing restrictions would be reduced or eliminated in instances where the restriction could be modified or possibly removed. The stipulations applied to Fluid Minerals (**Appendix H**) state the allowable seasons of use. Lessees and permittees can plan and design future exploration or operations plans around these restrictions. These stipulations include a waiver or exception that can be considered by the Authorized Officer if the stipulation is later found not necessary to accomplish the desired resource protection. It is intended that the need and effectiveness of stipulation restrictions placed on Fluid Minerals leases can be reassessed at the time that operations are proposed on the lease.

Stipulations that do not accomplish the desired resource protection would be changed accordingly, using the exception, waiver, or modification criteria set forth in **Appendix H**. This could reduce or eliminate impacts on minerals and energy exploration and development. Clarifying changes would be made to the wording of stipulations as long as there would be no substantial change to the protection provided by the mitigation. This reassessment would be

accomplished during the NEPA process at the time that an application is submitted to the BLM by the lessee for approval of surface-disturbing activities related to exploration or development.

It is important to note that the timing stipulations proposed for leasing in **Appendix H** and **Appendix D** do not address all necessary site-specific protection and mitigation measures needed for the approval of an environmentally sound exploration or operation plan. These measures would be developed and applied during a future BLM review and approval of individual APDs, ROWs, sundry notices, etc. The measures would be developed and assessed in a site-specific NEPA document that would be provided for public and interagency review. Measures deemed appropriate would be made conditions of approval by the BLM for any subsequent operational approvals (**Appendix C – Guidelines/Techniques/Practices**).

Except for exploration activities, timing restrictions are not expected to impact the production of oil and gas and geothermal resources or the mining of Solid Minerals. The restrictions typically would not apply to the operation and maintenance of minerals and energy production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient. Minerals and energy development projects could face additional mitigation costs and increased operational logistics if the project would impact a sensitive species in a manner that would contribute to the species becoming listed under the ESA.

In most cases, sensitive species mitigation would not result in high costs that would prevent minerals and energy development. Protection and mitigation measures for sensitive species are typically less rigorous or stringent than for those of listed species. However, costs and/or delays from applying mitigation for sensitive species would add to other mitigation costs and delays. This could contribute to an overall effect of reducing minerals and energy recovery or preventing a proposed operation from being implemented.

Impacts from Visual Resources Direction: Approximately 11,200 acres of public lands are designated as Class I and approximately 78,600 acres are designated Class II. Class I and Class II lands comprise 2% and 13% of public lands, respectively, within the planning area. Approximately 11,900 acres of High potential oil and gas area, approximately 3,800 acres of High geothermal potential area, and approximately 32,800 acres of Medium geothermal potential area would require project mitigation to meet Class I or II requirements.

Table 4.3.4-4 presents VRM Classes I and II present in oil and gas and geothermal resource potential areas.

Table 4.3.4-4. Approximate Acres (Percent) Public Lands Designated as Visual Resources Class I or II in Oil and Gas and Geothermal Resource Potential Areas

VRM Restriction	Oil and Gas Potential				Geothermal Potential		
	High	Medium	Low	None	High	Medium	Low
Class I and II	11,900 (10%)	55,400 (31%)	21,300 (7%)	1,000 (14%)	3,800 (20%)	32,700 (21%)	53,100 (12%)

Surface disturbance related to minerals and energy exploration, development, and production facilities, would need to meet objectives for the particular VRM class set for the area to the extent that the BLM determines it feasible. This could entail relocation, elimination of certain

facilities, and measures to mitigate alterations to line, form, color, and texture. This could result in additional time and costs to project development. The costs could be substantial in VRM Class I areas and somewhat less substantial in Class II areas.

No impacts would affect the development of most solid or Fluid Minerals, as Class I lands are associated with the WSAs within the planning area where no minerals would be leased or sold. Development of mining claims in WSAs would have to meet wilderness non-impairment and VRM Class I criteria.

The Class II rating along the Blackfoot River may make disposal of Mineral Materials more difficult. However, existing BLM-managed pits in the area could be sufficient to supply materials for local road maintenance and other activities, as has been done in the past. In most, if not all, cases, it would be anticipated that the proposed VRM ratings would not preclude minerals and energy development on public lands.

Impacts from Water Resources Direction: Promoting the delisting of quality-impaired waters and meeting beneficial use standards would require the incorporation of BMPs and operational design changes at minerals and energy exploration, mining, and production sites. Water quality monitoring would be necessary to check progress and compliance. This would add to the cost of extracting minerals and energy resources, but the amount would not be much larger than in the current situation when considering that State and Federal law already require these provisions.

Operators would continue to use the measures such as the *State of Idaho BMPs for Mining*, the *BLM Gold Book*, *Selenium BMP Catalog*, and other state-of-the-art methods. Examples of sediment control and reclamation BMPs are contained in **Appendix C – Guidelines/Techniques/Practices.**

Impacts from Minerals and Energy Direction: Under all alternatives, between 544,800 to 597,500 acres of public lands are available for solid Mineral Leasing, location and operation of mining claims, and Mineral Material disposal. This does not mean that all these areas would be leased, permitted, or claimed or that the lands would be impacted by surface-disturbing activities. Development of minerals is very rare over the context of the overall landscape. Development can only occur in those extremely rare and unique instances where economic deposits of mineral resources are found to exist.

As stated in the *Methods and Assumptions* section and based on past experience and trends discussed in Chapter 3, the estimated total amount of disturbed public lands from these activities totals approximately 917 acres. This constitutes potential surface disturbance on 0.15% of all public lands managed by the PFO. Within limits of operational constraints, established requirements in the RMP, regulation, and statute, would result in over 75% of these lands being reclaimed to a productive post development condition, such as plant or wildlife habitat. The 25% not reclaimed includes residual highwalls, gravel pits, and stone quarries that cannot be revegetated. Approximately 230 acres might be left unreclaimed from solid mineral development. This constitutes 0.04% of the public lands within the PFO.

As required by NEPA, the BLM would reassess minerals management within the PFO before implementing individual surface-disturbing projects or programmatically if substantial changes occur that are relevant to environmental concerns (40 CFR 1502.9[c]).

Overall, the total anticipated surface disturbance for all fluid and solid minerals over the next 15 to 20 years is approximately 1,231 acres, or 0.20% of the public lands managed by the PFO, with an estimated 88% being reclaimed to productive post-development uses. This would leave 0.02%, or 148 acres, of public land having residual impacts from mineral development.

Programmatic oil and gas leasing is conducted in the PFO using a 1988 environmental assessment and other documents (Alternative A). Under all alternatives, Fluid Mineral Leasing would be conducted on a programmatic basis. Impacts are discussed in the sections that follow.

The approximately 20,160 acres of withdrawals for USFWS-managed lands are currently in place. These lands were withdrawn by act of Congress or by previous administrative process. Wildlife and habitat, as well as water resources were determined to be the primary emphasis of these lands. Locatable Minerals development is precluded by the withdrawal. Leasing or Mineral Materials permitting would not be pursued by the BLM, except with full approval of the USFWS.

While the BLM manages mineral estates belonging to the US, the Forest Service has been given authority to manage much of the minerals and energy development on National Forest System lands. The BLM retains minerals and energy management authority in the case of non-energy Mineral Leasing and development, such as phosphate. The Caribou portion of the Caribou-Targhee National Forest lies within the planning area. Management direction defers to provisions in the Caribou Forest Plan when considering minerals and energy leasing. This should ensure that minerals and energy management on National Forest System lands, as administered by the BLM, complies with Forest Service direction.

For non-National Forest System lands and those not subject to requirements and direction from the Surface Management Agency or Native American tribes, Management Objective CA-ME-1.2 and related Action Items would provide more clear, uniform management direction for minerals and energy exploration, development, and reclamation activities on Tribal reservation lands and on lands where the surface is managed by a federal agency other than the BLM.

Using the Idaho Standards for Rangeland Health would provide more detailed, uniform direction to minerals and energy resource development for designing reclamation plans for public lands and other mineral estates managed by the BLM. The standards provide a useful supplement to the general reclamation direction given in the regulations at 43 CFR 3000 that govern minerals and energy development on public lands. Reclaimed minerals and energy development sites meeting these standards would achieve productive, ecologically healthy post-mining-and-development uses.

General direction in all alternatives would require that environmental monitoring be conducted, including on minerals and energy operation sites. This is currently standard operating practice and would not impact minerals and energy development or use.

For all planning direction, management of resources and uses that require mitigation measures to reduce impacts from minerals and energy operations could result in additional expenditures and a longer permitting timeframe for the developer.

Impacts from the RFDS of Fluid Minerals: All alternatives in the RMP have been analyzed for their impacts on oil and gas and geothermal leasing on all public lands.

Although the alternatives would allow consideration of Fluid Mineral Leasing on approximately 344,500 to 602,600 acres, this does not mean that all these areas would be leased or that the areas would be impacted by surface-disturbing activities. In the past, most Fluid Mineral leases issued in the PFO expired without incurring any exploration or development. The *Methods and Assumptions* under this section, the *Minerals and Energy* section of Chapter 3, and **Appendices Q** and **R** provide context to the amount of disturbance and impacts that are reasonably foreseeable from the small number of Fluid Mineral leases that may be actually developed. The RFDS for Fluid Minerals predicts a total surface disturbance of approximately 185 acres for oil and gas activities (most likely in the eastern portion of the PFO) and approximately 129 acres for geothermal energy activities, for an estimated total disturbance of approximately 314 acres. This constitutes potential surface disturbance on 0.05% to 0.09% of public lands designated open for consideration of Fluid Minerals Leasing and 0.05% of the total public lands within the PFO. Established requirements in the RMP, regulation, and statute, (within limits of operational constraints) would result in an estimated 90 to 100% of these lands being reclaimed to a productive post-development condition, such as plant or wildlife habitat.

As required by NEPA, the Fluid Mineral Leasing program within the PFO would be reassessed if substantial changes were to occur that are relevant to environmental concerns (40 CFR 1502.9[c]). This includes the extent of the activities estimated in the RFDS.

Although no ground disturbing impacts occur when a lease is issued, exclusive rights are granted to the lessee to explore for, and develop, the Fluid Minerals that exist within the leased lands. It is anticipated that these activities would occur on a total of approximately 314 acres of public lands within the planning area during the next 20 years. Over the long term, most or all of the impacted areas would be reclaimed. For Alternatives B, C, and D, reclamation would have to meet the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* as described in **Appendix A** (BLM 1997a).

The acceptance of any one of the alternatives would allow geophysical activities to be approved and oil and gas and geothermal leasing to occur without further NEPA analyses in most cases. However, separate, individual NEPA analyses may be conducted when considering Fluid Minerals leasing in cases where special resource values are found to exist, new information or circumstances arise with significant new resource concerns, predicted impacts (including cumulative impacts) are substantially different than those analyzed in this document, additional public or interagency involvement is deemed necessary, or when any other reason deemed important by the BLM occurs.

The impacts of leasing are assessed in this DEIS/RMP document, but additional NEPA analysis would be conducted prior to allowing any surface disturbance on leased lands.

The impact of considering Fluid Minerals leasing at the RMP level would include a decrease in the amount of time and costs necessary to lease Fluid Minerals in the future. Review of site-specific exploration and development proposals could begin faster and more efficiently than when assessing each individual lease proposal separately. Cumulative effects of leasing an estimated 50 to 100 leases are more easily assessed in an RMP.

A lessee's basic compliance requirements include lease terms and conditions. Terms and conditions specify annual rents; production royalties; general requirements of operation,

reclamation, reassignments; and other generic requirements that apply to all federal minerals and energy leases of that type. The standard lease terms and conditions are contained in **Appendix H**.

Since lease terms and conditions are standard and have previously been approved by the BLM, impacts associated with applying the terms and conditions are not assessed here. Special stipulations for Fluid Minerals leases are presented and assessed as part of the RMP analysis. Also, using future analysis under NEPA, additional conditions of approval that would be appropriate for a particular site would be developed and applied to any operations plan that is approved by the BLM. This would provide specific direction to lessees and operators on how to implement the general stipulations and other resource protection measures at individual lease sites.

Special stipulations that would be proposed for consideration for every Fluid Minerals lease in the planning area are also presented in **Appendix H**. These stipulations may be added to the standard lease terms and conditions for the protection of resources and for other uses that may exist at a particular proposed lease site. These stipulations would be formulated and applied after the BLM assesses a particular site for leasing. The stipulations specify limitations on occupancy such as NSO, which restricts any activity or construction that would cause surface disturbance, and timing, or season-of-use, restrictions.

These restrictions serve to protect areas requiring a high degree of surface protection and to allow other uses of the land (**Appendix H**, Stipulations #1, #5, #6); to protect water resources, recreation, and cultural resources (Stipulation #2); and to protect important fish and wildlife, reproduction activities, and habitat (**Appendix F**, Stipulation #4). Stipulations #7-#12 would be applied, as appropriate, where the surface overlying the mineral estate managed by the BLM is managed by other government agencies.

The general leasing stipulations proposed in **Appendix H** are programmatic for the planning area. They address basic requirements that apply to conducting surface disturbance such as exploring and developing the lease. They do not address the many necessary site-specific protection and mitigation measures needed for approval of an environmentally sound Fluid Minerals operations plan. Mitigation measures appropriate for the site and the particular operations plan that may be proposed by the lessee would be developed and applied during a future BLM review and approval of individual APDs, ROWs, sundry notices, and operating plans.

The measures would be developed and assessed in a site-specific NEPA document that would be provided for public and interagency review at that time. Measures deemed appropriate would be made conditions of approval by the BLM for any subsequent operational approvals (**Appendix H**). These measures would be added to the stipulations assessed in this document.

Also, the NSO stipulations discussed here would apply to programmatic Fluid Minerals leasing and would not apply to Solid Minerals leases or permits. Solid minerals would be leased and permitted using individual NEPA analysis to determine if leasing/permitting should occur and what appropriate stipulations should be used.

Leases issued with major constraints such as NSO (Stipulations #1, #2, and #3) would still be accessible by directional drilling, except where large blocks of public land would preclude it. Directional drilling is more expensive and has a lower success rate that conventional drilling. Requiring a lessee to use directional drilling by applying an NSO stipulation could result in less than optimal utilization of the resource. These stipulations would decrease the lease value and, to a lesser extent, require the relocation of well sites and the modification of field development. NSO stipulations would tend to have the effect of adding to existing risk of finding and developing Fluid Mineral resources. This would tend to reduce interest in leasing federal Fluid Minerals where an NSO stipulation is applied. Less leasing would tend to reduce Fluid Minerals exploration and development. Leases issued with less major constraints, such as timing restrictions (Stipulation #4), would result in similar impacts, as well as delays, in operators' operations and uncertainty.

Stipulation #5 would ensure that Fluid Minerals development would not interfere with active operations on federal phosphate leases in southeastern Idaho. Phosphate mining occurs in the High potential oil and gas area of eastern Idaho. The mines follow phosphate outcrops that are narrow and long. Oil and gas exploration and development could occur off site using directional methods with limited-or-no adverse impact on phosphate, oil and gas and/or geothermal resources. It is not anticipated to decrease the value of Fluid Minerals leases.

Stipulation #6 requires a Fluid Minerals lessee to not interfere with the operation and activities of an active power-generating site. No impacts on minerals and energy are anticipated from this requirement.

Stipulation #7 should not result in impacts on the exploration and development of Fluid Minerals leases. The stipulation imposes requirements on Fluid Minerals lessees to reimburse for any damage to crops, livestock, or real property associated with the Fort Hall Irrigation project.

No impacts are anticipated to Fluid Minerals development or use from stipulations #8-#12. These stipulations ensure protection of facilities that the BOR manages. The stipulations also ensure that the Bureau is able to carry out its responsibilities to build and operate water storage dams and reservoirs. Most lands managed by the BOR are either small in size or located in areas with Low Fluid Minerals potential. The exception to this is some areas with High and Medium geothermal resource potential located south of, and adjacent to, the American Falls reservoir. However, in this case, it is anticipated that any geothermal development could be accomplished in a manner that would not affect land uses administered by the BOR.

In some cases, the impacts on Fluid Minerals leases from occupancy, timing, or other restrictions would be reduced or eliminated in instances where the restriction could be modified or removed. The stipulations applied to Fluid Minerals (**Appendix H**) contain general restrictions regarding occupancy of the land, allowable seasons of use, control of surface uses, and special administration requirements (stipulations that accommodate the needs of another government agency or organization). Lessees can then use the stipulations as a guide and incorporate them into the design of any future operations plan. These stipulations include a waiver or exception that can be considered by the Authorized Officer if the stipulation is later found not necessary to accomplish the desired resource protection.

It is intended that the need and effectiveness of stipulation restrictions placed in Fluid Minerals leases can be reassessed at the time that operations are proposed on the lease. Stipulations that are not accomplishing the desired resource protection would be changed accordingly, using the exception, waiver, or modification criteria set forth in **Appendix H**. Clarifying changes would be made to the wording of stipulations as long as there is no substantial change to the protection provided by the mitigation. This reassessment would be accomplished during the NEPA process at the point where surface-disturbing activities are proposed under the Fluid Minerals lease.

The impacts on the minerals and energy resources in the planning area by applying NSO or timing restrictions to Fluid Minerals leases are discussed below in each alternative.

The eastern portion of the planning area is rated as a High potential area for the occurrence of oil and gas resources. Although it is a High potential area, the likelihood of significant production of these resources is probably Low over the next 20 years. This is because other oil and gas resources are known to exist in the Utah and Wyoming portions of the Overthrust Belt and other locations in the Rocky Mountains. Feeder pipelines and other transportation infrastructure are in place at other locations, but not in the planning area. It is likely that most oil and gas production would occur from the known areas where infrastructure exists for oil and gas production.

When existing and known reserves in the intermountain west become exhausted or production declines, new, promising locations like eastern Idaho could see increased exploration. If exploration leads to a valuable hydrocarbon resource discovery, additional exploration and development could commence at a much higher level. Eastern Idaho would likely experience a fairly high level of interest and activity sometime after the next 20 years. Over the next 20 years, it is anticipated that most oil and gas activity would consist of geophysical testing and some exploration drilling. As discussed in the RFDS in **Appendix P**, exploration may discover limited reserves that are economically feasible to produce. The RFDS estimates that approximately 185 acres of total surface disturbance could result from 50-100 oil and gas leases over the next 20 years.

The effect on minerals and energy resources from geophysical and exploration drilling activities is an increase in the availability of geologic information, primarily with respect to hydrocarbon petrology and structures in eastern Idaho. This information would be important in the consideration and design of additional exploration activities. If valuable oil and gas resources are discovered on federal leases, production and development could occur that would begin depletion of these nonrenewable resources. Utilization of these resources at this time would assist in meeting society's demand for the present, but would preclude their availability for future use at a time when they might be more valuable.

A High potential for geothermal resources exists at various locations throughout the planning area. Exploration for geothermal resources is projected to impact around 87 acres of public lands during the next 20 years. Most if not all of these acres would be reclaimed at some point. Although many geothermal leases may be issued, the RFDS for geothermal resources in **Appendix Q** estimates that perhaps one of several geothermal exploration projects would find an economically viable geothermal energy source. That source may require approximately 42 acres to develop and produce, for a total of 129 acres of surface disturbance. It is anticipated that all areas impacted would be reclaimed.

The effect on geothermal resource development from the plan direction common to all alternatives would be inconsequential if spent geothermal resources were reinjected properly into the source rock. The resource could be depleted if spent fluids were not reinjected for recharge. Geothermal resources are typically considered to be a renewable resource because the geothermal waters and steam that are utilized are heated by magmatic conduction through rock. Developed geothermal resources would not likely be depleted very rapidly if water and steam utilized to produce geothermal energy were injected back into the ground. Significant depletion of geothermal resources as an impact from management direction is not likely to occur if spent geothermal fluids were reinjected into the rock heat source. Development of geothermal resources in one area may deplete those in another area. This is particularly important to consider when issuing a lease near a previously existing right or lease, with Lava Hot Springs being a prime example. Almost the entire economy of the town, and certainly its identity, comes from its hot pools. Overtaxing the geothermal reservoir may disrupt, deplete, or destroy this resource and disturb a major attraction of the town.

Impacts from Special Designations Direction: No leasing or permitting of Solid or Fluid Minerals would occur in the WSAs. Mining claims for Locatable Minerals could still be staked. However, development would be subject to non-impairment of wilderness qualities and other standards set forth in 43 CFR 3802 and elsewhere.

4.3.4.4 Alternative A

Impacts from Vegetation Direction: The seeding and reclamation of minerals and energy development sites is standard operating practice. Sites must be reclaimed to a productive post-development use that typically includes forage production for wildlife and livestock. It is anticipated that Alternative A vegetation objectives would not impact minerals and energy development and use.

Impacts from Special Status Species Direction: Specific objectives and actions would be set to protect sensitive species and their habitat. Applying mitigation measures to minerals and energy development projects for sensitive species may increase the complexity of development logistics and would add to the cost of the project.

Measures would be required to mitigate impacts from minerals and energy development projects that could degrade the PFC of streams containing cutthroat trout. For example, buffer zones may be required to prevent the possibility of erosional sediment from reaching streams. This could render portions of an ore or Mineral Materials deposit unable to be mined and would result in a loss of resource recovery.

Access and haul road stream crossings may need to be rerouted or may necessitate the incorporation of fish passage structures. Other mitigation would be required to protect or enhance cutthroat trout habitat. This could add to the time frame necessary to permit new operations and would add cost to minerals and energy development activities.

NSO stipulations would not be proposed under Alternatives A, B, and D in special status plant habitat, which is less restrictive to Fluid Minerals Leasing activities than under Alternative C, which proposes approximately 3,300 acres of NSO to protect special status species.

Impacts from Lands and Realty Direction: It is anticipated that a portion of the approximately 32,200 acres of land considered for disposal would contain valuable minerals, primarily sand and gravel, stone, and other Mineral Materials. Some tracts may have solid leasable or Locatable minerals. When disposal is considered, the value of these lands would be appraised to include minerals. This would result in an increase in the sales price or exchange value of the lands in favor of the US. The actual impact on minerals and energy cannot be determined since specific lands are not identified for disposal. However, detailed mineralogical evaluation and appraisal would be conducted at the time specific lands are proposed for disposal. Land ownership adjustments could result in the acquisition or disposal of lands with mineral value and, as a result, could either increase or decrease opportunities for development.

The acquisition of additional legal access across private or other lands would provide increased opportunities to explore and develop areas that may not be accessible by other routes.

Authorizations of ROWs for facilities such as roads, highways, power lines, pipelines, mining, and processing facilities would influence minerals and energy development by providing access and infrastructure for minerals and energy exploration and development operations. Issuance of ROWs would be very important to provide access to Fluid Minerals leases for exploration and development purposes.

Alternative A would be the most restrictive alternative for issuing ROWs for minerals and energy development projects. No ROWs would be issued within the approximately 30,700 acres, or 5%, of public lands to be managed as exclusion areas. Another approximately 20,200 acres, or 3%, of public lands would be managed as avoidance areas for ROWs. Approximately 562,900 acres would be open for ROW consideration.

In most circumstances, no impacts would occur to development of solid or Fluid Minerals as lands in the exclusion area are associated with WSAs and no minerals and energy leasing or permitting is allowed in those areas. Access to mining claims would likely not occur, but there are no mining claims within the WSAs at this time.

Excluding the consideration of ROWs along the Blackfoot River may make the disposal of Mineral Materials more difficult. However, current access to BLM-managed pits in the area is by county road; and additional ROWs would not be necessary. No impacts on Solid Leasable or Locatable Minerals exploration or development are anticipated from excluding consideration of ROWs in these areas.

LUA avoidance areas would likely not impact Fluid Minerals development, except for possibly in the Gray's Lake Wildlife Refuge and Stump Creek ACEC areas which are in High potential oil and gas areas. ROWs needed for Fluid Minerals development in these areas could be more expensive to mitigate and may require rerouting to avoid conflicts with other important resources.

Other exclusion areas are smaller and would not likely greatly impact the issuance of necessary ROWs in support of minerals and energy development. The greatest impact on minerals and energy development could be to sand and gravel. It is likely that other sources of these Mineral Materials could be located if necessary. If an ROW is necessary and an alternative route does not exist, the site would require that BMPs, mitigation, siting, or design conditions of approval be

attached to the ROW. These measures would add cost to any minerals and energy exploration or development proposal and would be implemented after a site-specific analysis.

The staking of mining claims and the development of Locatable Minerals would not be allowed on approximately 45,400 acres of public lands that would be withdrawn (e.g., power sites, PWRs, power projects, administrative sites, BSD) and the approximately 20,200 acres that are under the management of the USFWS.

Alternative A would propose to pursue withdrawal on another approximately 1,500 acres of RNAs to protect sensitive surface resources. This action would also preclude the development of Locatable Minerals, subject to prior existing rights. There are no significant Locatable Minerals deposits known to exist within the RNAs. The impact on minerals and energy use is anticipated to be minimal. The BLM would reserve the right to lease or permit non-Locatable minerals at its discretion and in coordination with any other surface management agency.

Impacts from Minerals and Energy Plan Direction: Table 4.3.4-5 shows public lands that would be closed or leased with an NSO stipulation for Fluid Minerals under all alternatives. **Table 4.3.4-6** shows by alternative public lands that would be closed to Fluid Mineral Leasing, that would be administratively unavailable for leasing, or that would be leased with an NSO stipulation. Similarly, **Table 4.3.4-7** displays the total acreage of public lands within the planning area that would be closed to Fluid Mineral Leasing, that would be administratively unavailable for leasing, or that would be restricted with an NSO stipulation if leased for Fluid Minerals. The total acreage in **Table 4.3.4-7** is not the sum of acres from **Tables 4.3.4-5** and **4.3.4-6** because some public lands could have overlapping NSO stipulations (e.g., with slopes greater than 30% and erosive soils) and under Alternative B, public lands in the Curlew area would be designated as administratively unavailable for Fluid Mineral Leasing, which supersedes any NSO stipulation.

In addition to lands in **Table 4.3.4-5**, Alternative A would designate an NSO for any Fluid Minerals leasing in RNAs, as shown in **Table 4.3.4-6**. This is composed of approximately 1,450 acres.

Of the approximately 602,600 acres of public lands open for the consideration of Fluid Minerals leasing, approximately 314,000 acres, or 51% of the PFO public lands, would be stipulated NSO. Out of 613,800 acres within the PFO, this constitutes 325,200 acres of restrictions or closures to Fluid Mineral Leasing. Alternative A, followed by Alternative D, is the most amenable to leasing without NSO restrictions or leasing closures in some of the High oil and gas potential areas and in High and Medium geothermal resource potential areas.

Table 4.3.4-5. Approximate Acres of Public Lands in the Planning Area with Fluid Mineral Potential and No Surface Occupancy or Closure for Various Resources/Uses for All Alternatives[1]

Resources/Uses	Oil and Gas Potential				Geothermal Potential		
	High	Medium	Low	None	High	Medium	Low
Total Acres of Public Lands in Potential Area	116,900	176,200	313,300	7,400	18,900	159,400	435,500
Percent of PFO Public Lands within each Potential Area	19%	29%	51%	1.20%	3.1%	26.0%	71.0%

Table 4.3.4-5. Approximate Acres of Public Lands in the Planning Area with Fluid Mineral Potential and No Surface Occupancy or Closure for Various Resources/Uses for All Alternatives[1]

Resources/Uses	Oil and Gas Potential				Geothermal Potential		
	High	Medium	Low	None	High	Medium	Low
Withdrawals – PWRs, NSO[2]	1,500	1,900	1,600	40	60	1,200	3,900
Withdrawals – Other, NSO[3]	14,700	12,800	300	550	2,100	13,100	13,200
Wilderness Study Areas, Closed to Leasing	40	11,200	0.0	0.0	0.0	2,500	8,800
Recreation and Public Purpose Leases, NSO	0.0	220	0.0	180	0.0	160	230
Areas of Critical Environmental Concern, NSO	2,500	5,100	2,300	0.0	1,000	2,300	6,600
Developed Recreation Sites, NSO	40	40	20	10	20	40	60
Historic Trails, NSO	400	280	340	70	10	440	640
Riparian and Wetlands, NSO	3,900	1,800	760	140	860	2,800	2,900
Perennial Streams, NSO	3,600	5,800	2,200	20	530	2,400	8,800
Erosive Soils on 20-30% Slopes, NSO	12,800	13,900	20,500	510	560	8,200	38,900
Steep Slopes greater than 30%, NSO	36,200	75,600	116,200	2,100	4,700	46,500	179,000

[1]Some NSO areas overlap each other.
[2] Section 107, 125
[3] Power site reserves, generating facilities, dams, etc.

Table 4.3.4-6. Approximate Acres of Special Designations, Fish and Wildlife/Special Status Species Geographical Areas and Special Status Habitat in the Planning Area with Fluid Mineral Potential Designated No Surface Occupancy or Administratively Unavailable for Leasing by Alternative

Special Designations or Geographical Areas	Oil & Gas Potential	Alternative				Geothermal Potential	Alternative			
		A	B	C	D		A	B	C	D
NSO Research Natural Areas (RNA)	High	450	450	450	450	High	0.0	0.0	0.0	0.0
	Medium	1,000	1,400	1,400	1,000	Medium	140	140	140	140
	Low	0.0	0.0	0.0	0.0	Low	1,400	1,800	1,800	1,400
	None	0.0	0.0	0.0	0.0					
NSO Soda Springs Hills Management Area[1]	High	0.0	18,700	18,700	3,600	High	0.0	170	170	40
	Medium	0.0	0.0	0.0	0.0	Medium	0.0	10,600	10,600	1,800
	Low	0.0	0.0	0.0	0.0	Low	0.0	7,900	7,900	1,800
	None	0.0	0.0	0.0	0.0					
NSO Special Status Plant Habitat[1]	High	0.0	0.0	1,970	0.0	High	0.0	0.0	200	0.0
	Medium	0.0	0.0	130	0.0	Medium	0.0	0.0	80	0.0
	Low	0.0	0.0	1,180	0.0	Low	0.0	0.0	3,000	0.0
	None	0.0	0.0	0.0	0.0					
NSO Bear Lake Plateau/Sheep Creek Hills[1]	High	0.0	0	44,800	0.0	High	0.0	4,500	4,500	0.0
	Medium	0.0	0.0	0.0	0.0	Medium	0.0	12,300	12,300	0.0
	Low	0.0	0.0	0.0	0.0	Low	0.0	28,100	28,100	0.0
	None	0.0	0.0	0.0	0.0					
Administratively Unavailable	High	0.0	0.0	0.0	0.0	High	0.0	3,900	0.0	0.0
	Medium	0.0	42,900	0.0	0.0	Medium	0.0	69,100	0.0	0.0
	Low	0.0	215,200	0.0	0.0	Low	0.0	185,100	0.0	0.0

Note: NSO acreage constitutes the area outside any Fluid Mineral Leasing closure and unavailable areas.
[1]Numbers represent total acres by alternative that lie within the selected areas where RMP direction is proposed to specifically protect plant or wildlife resources with an NSO stipulation. Note that under every alternative, RMP direction would apply and require NSO stipulations on Fluid Mineral leases to protect soil and water resources. These NSOs would indirectly benefit plant and wildlife resources. For example, under Alternative C, all of the Bear Lake Plateau/Sage Creek Hills would be identified as NSO for Fluid Mineral Leasing. This constitutes 44,800 acres. Under Alternative B, 0 acres are proposed to carry an NSO stipulation, but 19,400 acres within the Bear Lake Plateau/Sheep Creek Hills are designated NSO to protect soil and water resources under all alternatives. This constitutes 43% of the 44,800 acres of public lands in that area. The NSO for soil and water resources would serve to indirectly benefit wildlife species in the plateau.

Table 4.3.4-7. Approximate Total Footprint Acres[1] of Public Lands with Fluid Mineral Potential and No Surface Occupancy, Unavailable, or Closed to Leasing[2] by Alternative

	Oil & Gas Potential	Alternative				Geothermal Potential	Alternative			
		A	B	C	D		A	B	C	D
Total Footprint Acres	High	66,800	74,300	99,800	68,200	High	8,200	12,100	11,400	8,200
	Medium	115,700	134,200	115,700	115,600	Medium	73,800	129,700	86,500	74,600
	Low	138,700	282,700	139,100	138,700	Low	243,200	353,400	260,700	243,700
	None	4,000	4,000	4,000	4,000					
	Total PFO	**325,200**	**495,200**	**358,500**	**326,500**		**325,200**	**495,200**	**358,500**	**326,600**

[1]Footprint acres represent the total acres within the planning area that are administratively unavailable or where a leasing closure or NSO stipulation would be implemented. Total numbers do not equal **Table 4.3.4-5** added to **Table 4.3.4-6** because some NSOs overlap.
[2]Includes 11,200 acres within WSAs that are closed by regulation to Mineral Leasing.

Tables 4.3.4-5 and **4.3.4-6** also show that, with the exception of the NSO for steep slopes and extremely erodible soils, most of the NSO areas in Alternative A are small-to-medium tracts of land that are scattered throughout the planning area. The acreage of lands proposed for NSO from withdrawals and ACECs are the total acreages of several sites. In the rare instance that any of these areas are targeted for Fluid Minerals exploration, it is likely that directional drilling and geophysical testing from adjacent lands would allow for adequate exploration and development to occur. It is anticipated that most Fluid Minerals exploration and development would not be impacted from these designations.

Under Alternative A, the NSO stipulation to be added to Fluid Minerals leases on slopes greater than 30% (**Appendix H, Stipulation #3**) would affect approximately 36,200 acres, or 31%, of public lands with High oil and gas potential. It would also affect approximately 4,700 acres, or 25%, of public lands that have High geothermal resource potential and approximately 46,500 acres, or 29%, of public lands that are estimated to have Medium geothermal resource potential. The restriction could decrease the auction value of a Fluid Minerals lease or reduce the recovery of Fluid Minerals resources if a large percentage of the surface of a lease is encumbered by NSO. Additional impacts from adding an NSO stipulation and directional drilling are discussed in the *Impacts from the RFDS (Common to All Alternatives)* of Fluid Minerals Section of 4.3.4.3.

Table 4.3.4-7 shows that in Alternative A, the total effect of applying Fluid Minerals lease stipulations #1, #2, and #3 (**Appendix H**) would preclude surface occupancy on approximately 66,800 acres of High potential oil and gas area. This comprises 57% of public lands within the High oil and gas potential area shown in **Figure 3-15**. There would be approximately 8,200 acres of public lands restricted to NSO on geothermal leases in High potential areas and approximately 71,300 acres of Medium geothermal resource potential areas as shown in **Figure 3-18**. These restrictions affect approximately 44% of the public lands in the High and 45% of public lands in the Medium geothermal resource potential areas.

This restriction could have a large impact on a lessee's ability to access exploration sites or to develop the resource. Increased costs and additional surface disturbance could be incurred during exploration and development due to the increased overland travel needed to avoid sensitive

areas. Additional seismic lines surrounding steep slopes may also be required and could increase exploration costs.

Stipulating NSO in Fluid Minerals leases where highly erosive soils exist on slopes greater than 20% (**Appendix H**, Stipulation #5) but less than 30% (greater than 30% slope is covered in the NSO stipulation discussed in the preceding paragraph) would have similar impacts on approximately 12,800 acres, or 11%, of public lands with High oil and gas potential. It would also affect approximately 560 acres, or 3%, of public lands that have High geothermal resource potential and approximately 8,200 acres, or 5%, of public lands that are estimated to have Medium geothermal resource potential.

In Alternative A, the NSO for highly erosive soils and steep slopes together affect approximately 49,000 acres, or 42%, of public lands with High oil and gas potential. These NSO restrictions would also affect approximately 5,260 acres, or 28%, of public lands that have High geothermal resource potential and approximately 56,700 acres, or 34%, of public lands that are estimated to have Medium geothermal resource potential.

In many cases, it is expected that the NSO restrictions would not impact the exploration or development of Fluid Minerals to a large degree, as there may be alternate routes to gain access to prospective exploration or development sites. Production sites favored by industry would typically be on lands that are less steep. There may also be instances where satisfactory mitigation or alternative development plans could be formulated to allow for an exception, waiver, or modification to this stipulation that would also allow for the maintenance of soil stability, visual resources, and other issues associated with the existence of this stipulation (**Appendix H**).

Much of the Fluid Minerals resource within the planning area is anticipated to be 5,000-to-12,000 feet below the surface. This would allow for the use of off-site directional drilling techniques to reach targets that lie as much as ¼-to-½ mile within an NSO area. Fluid Minerals resources farther than ¼-to-½ mile from the drill site would likely not be developed. This would preclude the development of Fluid Minerals resources located on blocks of land larger than ½-to-1 mile in diameter. NSO stipulations would decrease the lease value, increase operating costs, and could require the relocation of well sites and the modification of any oil and gas field or geothermal energy development. Leases issued with less restrictive constraints, such as timing constraints, would result in similar impacts on, as well as delays in, operations, uncertainty, and risk on the part of operators.

In summary, under this alternative, Fluid Mineral Leasing closures would affect 11,200 acres, or 2% of the PFO (**Tables 4.3.4-5** and **4.3.4-6**). This includes no High potential oil and gas resource areas but impacts 2,500 acres, or 2% of the High potential geothermal resource areas, and 8,800 acres, or 2% of the Medium potential geothermal resource areas.

NSO stipulations would be applied to any Fluid Mineral leases issued within an additional 314,000 acres (51% of the public lands within the field office). These areas are composed of 66,800 acres, or 57% of the High potential oil and gas areas. NSO would also apply to 8,200 acres, or 44% of the High potential, and 71,300 acres, or 45% of the Medium potential geothermal resource areas.

Together, closures and NSO restrictions affect 325,200 acres (**Table 4.3.4-7**), or 53% of public lands under this alternative. Timing restrictions to protect big game, greater sage-grouse, and Columbian sharp-tailed grouse would affect another approximately 227,400 acres (**Tables 4.3.4-2** and **4.3.4-3**).

This alternative is the least restrictive and impacts Fluid Mineral development less than all other alternatives, although it is very similar to Alternative D.

Impacts on minerals and energy resources may be smaller than anticipated as there may also be instances where satisfactory mitigation or alternative development plans could be formulated to allow for an exception, waiver, or modification to timing stipulations that would also allow for the protection of resources or issues associated with the existence of this stipulation (**Appendix H**, page 4).

Mineral materials located within water and power project withdrawals would not be available for disposal to aid in the construction and maintenance of facilities or adjacent access roads. As construction has often taken place around these sites, they may make good choices for the consideration of small Mineral Materials sites if such use doesn't interfere with the water or power project operations. The closure of water and power project sites would be approximately 19,000 acres, or 3%, of the planning area.

Impacts from Recreation Direction: The existing Blackfoot River (approximately 21,800 acres) and Pocatello (approximately 33,400 acres) SRMAs may make it more difficult to approve minerals and energy exploration or development plans, as recreation uses would be given higher priority. It could be more difficult to dispose of Mineral Materials under free use and sales in those areas. The areas are outside phosphate areas and High potential oil and gas and geothermal resource potential areas. Historic Locatable minerals development is not known to have occurred in the Blackfoot River SRMA, but historic Locatable Minerals exploration and development has occurred south and east of Pocatello (e.g., Fort Hall Mine, Moonlight Mine). No activity has recently occurred or been proposed.

Impacts from Special Designations Direction: The effect of adding an NSO to Fluid Minerals leases is discussed in the Minerals and Energy section.

The protection of eligible river segments (**Figure 3-20 and Figure 3-21**) until determinations on the suitability for inclusion in the National Wild and Scenic Rivers System (NWSRS) have been made could preclude minerals and energy leasing or development in the vicinity of the river segments.

In Alternative A, the BLM would close all ACECs (approximately 9900 acres) and RNAs (approximately 1500 acres) to Solid Minerals Leasing. Disposal of Mineral Materials would not be allowed from water and power project withdrawals comprising approximately 19,000 acres listed in Action A-ME-2.3.2. The BLM would close RNAs to disposal of Mineral Materials and would also pursue a withdrawal to prevent the staking of mining claims and development of Locatable minerals. Locatable minerals development in ACECs would not be eligible for exploration work to be carried out under a Notice of Intent, but would require submittal of a PO. The BLM could consider disposal of Mineral Materials in ACECs.

Special designations are located outside of the major phosphate resource areas so this action would have no impact on the development of solid leasable minerals. Little potential for Locatable minerals is known to exist in the ACECs and RNAs that would be proposed in Alternative A. Limited amounts of sand and gravel, stone, and other Mineral Materials exist at some of the RNA and ACEC sites; but, as these sites account for 2% of public lands within the planning area, it is expected that demand for Mineral Materials could be met from other, nearby public or private lands.

4.3.4.5 Alternative B

Impacts from Vegetation Direction: Many minerals and energy exploration and development operations utilize straw in performing reclamation and in controlling erosion and sedimentation. The requirement to utilize certified weed-free straw should not affect operators. Use of weed-free straw has become a common practice due to requirements set by other land management agencies such as the IDL and the Forest Service. The PFO has required the use of weed-free straw (Action AA-VE-2.1.1) in most minerals and energy exploration and development approvals granted over the past several years.

Impacts from Special Status Species Direction: Same as Alternative A, except that Fluid Mineral Leasing and development would be restricted with an NSO stipulation within the Soda Springs Hills Management Area. Also, the Curlew area would be identified as administratively unavailable to leasing and development, as discussed under the Impacts from Minerals and Energy Direction section.

Impacts from Lands and Realty Direction: Impacts on minerals and energy use and development are the same or similar to those identified in Alternative A except as noted here.

Lands considered for disposal or exchange may contain valuable solid or Fluid Minerals. Whereas approximately 32,200 acres of mostly isolated public land parcels throughout the planning area would be considered to be open to disposal in Alternative A, land tenure adjustments in Alternatives B, C, and D, would be addressed by using a 4-zone concept. Zone 4 lands would be identified for disposal from public domain and would consist of approximately 56,300 acres in Alternative B. It is estimated that approximately 28,150 acres, or 50%, may be exchanged or sold from the public land base.

Another approximately 141,000 acres would be categorized as Zone 3. Alternative B states that the public land base in these areas should be consolidated into larger, more manageable blocks of land having higher resource values. Parcels of public lands not having high resource values would be disposed of through sale or exchange.

It is anticipated that a portion of the estimated 28,150 acres of public lands in Zone 4 that may leave public domain would contain valuable minerals, primarily sand and gravel, stone, and other Mineral Materials. The tracts that may have Mineral Materials are primarily located in the alluvial valleys throughout the planning area. Tracts in Zone 4 that may contain the solid leasable Mineral phosphate would be isolated and are located primarily northeast of Soda Springs, east of Chesterfield Reservoir, and north of Blackfoot Reservoir. The extent and location of tracts that may contain valuable Locatable Minerals is less certain. In Zone 4, tracts northeast of Preston

contain zeolite, the Soda Springs Hills area contains some Locatable grade limestone, and other locations of metallic mineralization are known to exist.

Table 4.3.4-8 shows the extent of lands within Zones 3 or 4 according to Fluid Minerals potential. Zone 4 contains approximately 13,800 acres of land with High potential for oil and gas resources. This represents 12% of the total, approximate 116,900 acres rated as having High oil and gas resource potential within the planning area.

Table 4.3.4-8. Approximate Acres of Public Lands in the Planning Area Identified for Possible Land Tenure Adjustments (Zones 3 and 4) in Fluid Mineral Potential Areas by Alternative

Fluid Mineral Potential		Total Acres All Zones	Alternative			
			A	B	C	D
ZONE 3 [1]						
Oil and Gas	High	116,900	NA	64,000	17,100	49,700
	Medium	176,200	NA	58,600	58,600	80,700
	Low	313,300	NA	12,800	12,800	291,500
	None	7,400	NA	5,700	5,700	1,300
Geothermal	High	18,900	NA	6,300	2,100	11,600
	Medium	159,400	NA	33,900	21,200	98,000
	Low	435,500	NA	100,900	71,000	313,600
Total Acres Public Lands Identified in Zone 3		n/a	32,000 [3]	141,000	94,200	423,200
ZONE 4 [2]						
Oil and Gas	High	116,900	NA	13,800	13,800	33,100
	Medium	176,200	NA	26,100	26,100	62,700
	Low	313,300	NA	14,600	8,700	19,600
	None	7,400	NA	1,700	1,300	6,100
Geothermal	High	18,900	NA	3,800	3,800	4,900
	Medium	159,400	NA	15,800	14,300	33,700
	Low	435,500	NA	36,600	31,700	82,900
Total Acres Public Lands Identified in Zone 4		n/a	32,200 [3]	56,300	49,900	121,400

[1] Areas generally retained, but may be exchanged for parcels with higher values.
[2] Areas that are a high priority for disposal.
[3] Land tenure adjustment zones do not apply to Alternative A. This acreage figure is for specific parcels of public lands as identified for disposal in Alternative A.

Zone 4 also contains approximately 3,800 acres, or 20% of approximately 18,900 acres of public lands with High potential for geothermal resources and approximately 15,800 acres, or 10% of the approximately 159,400 acres of public lands, with Medium potential for geothermal resources. It is estimated that less than 50% of these Zone 4 acres would be sold or exchanged.

Alternatives B and C would designate the least amount of public lands (approximately 13,800 acres) with High oil and gas potential as open for disposal. Alternative B designates the most land (approximately 64,000 acres) in Zone 3 as open for land disposal or consolidation in areas with High oil and gas potential.

In any zone, the BLM would not be required to dispose of tracts that might contain valuable minerals. A minerals and energy report would be prepared by the BLM to determine the presence and value of minerals that may be contained in a parcel at the time it is proposed to be sold or exchanged.

The mineral value of any lands in Zones 3 or 4 would be included in an appraisal and would be considered in determining the overall value of the tract. The BLM would use the report to consider the public interest in selling or exchanging the parcel.

Minerals that are part of lands sold or exchanged out of the public land base would continue to be available for development if the future owner were amenable. The US would relinquish control of development and any monetary compensation associated with development of the resource.

ROWs on public lands are often necessary to authorize access roads, mills, and other facilities that are critical in development of Solid and Fluid Minerals deposits. Lands designated as exclusion for consideration of ROWs would decrease in Alternative B. The Blackfoot River corridor would be changed from exclusion to avoidance. Approximately 590,000 acres would be managed as open areas; and approximately 21,900 acres of developed recreation sites, historical trails, special status species habitat, ACECs, and WSA would be managed as avoidance areas. ROWs could be issued in avoidance areas in support of minerals and energy development activities, but would be subject to mitigation requirements. In some cases, mitigation measures might be quite costly.

The approximately 1,900 acres of RNAs would be managed as exclusion areas where ROWs would not be allowed. The total acreage of RNAs is small, 0.31% of the planning area. In Alternative B, ROW direction would not be expected to greatly affect the development of solid or Fluid Minerals resources.

Withdrawal of approximately 19,200 acres of RNAs, the Soda Springs Hills Management Area, and the Bowen Canyon ACEC is discussed under Impacts from Minerals and Energy direction.

Impacts from Minerals and Energy Direction: Impacts on minerals and energy would be the same as Alternative A except as noted here.

Under Alternative B, approximately 344,500 acres of public lands would be open for consideration of Fluid Minerals Leasing, with about 226,000 acres managed with an NSO stipulation and 118,500 acres managed without any NSO stipulation. Approximately 269,300 acres (WSAs and Curlew area) would be closed or administratively unavailable to all Fluid Mineral Leasing (**Tables 4.3.4-5** and **4.3.4-6**).

The Soda Springs Hills Management Area, comprising approximately 18,700 acres, would be designated NSO (**Table 4.3.4-6**). This area comprises 16% of all public lands located in the High potential oil and gas area shown in **Figure 3-15**. About 10,800 acres of lands with High or Medium potential for geothermal resources (about 8% of public lands in the High and Medium geothermal potential areas) would also be affected. Directional drilling could only be utilized to access the periphery of this management area. Most of this area would be inaccessible. Exploration and development of Fluid Minerals resources in the Soda Springs Hills Management Area would be difficult or impossible with an NSO designation.

Although Alternative C is the alternative that emphasizes nonconsumptive uses and applies extra restrictions to Fluid Mineral leasing and development, Alternative B has been modified since the Draft RMP, and it is now perhaps the most restrictive alternative to Fluid Minerals. Alternative B is different from the other alternatives because approximately 258,100 acres of public lands would be administratively unavailable to leasing in the Curlew area (**Tables 4.3.4-6** and **4.3.4-7**). Although Alternative C proposes more extensive use of NSO restrictions (57% of public lands within the PFO with an NSO restriction and 58% of all public lands within the PFO would be closed or would have an NSO restriction), it is the second most restrictive to Fluid Minerals leasing and development. This is because Alternative B proposes to make a large block of land in the Curlew area unavailable for Fluid Mineral Leasing (44% of public lands within the PFO and 81% of all public lands within the PFO would be closed or would have an NSO restriction).

In areas closed to leasing, legal access to minerals would not be allowed during closure. Fluid Mineral leasing would be indefinitely postponed within the administratively unavailable area subject to further National Environmental Policy Act analysis that demonstrates that the objectives for initially holding lands from lease offering can be alternatively met or no longer apply. Leases issued with major constraints, such as NSOs, would still be accessible by directional drilling, except where large blocks of public land would preclude it. Directional drilling is more expensive and has a lower success rate than conventional drilling. Requiring a lessee to use directional drilling by applying an NSO stipulation could result in less than optimal use of the resource. These stipulations would decrease the lease value and, to a lesser extent, would require the relocation of well sites and the modification of field development. NSO stipulations would tend to have the effect of adding to the risk of finding and developing Fluid Minerals. This would tend to reduce interest in leasing federal Fluid Minerals where an NSO stipulation is applied. Less leasing would tend to reduce Fluid Minerals exploration and development.

Similar to Alternative C, under Alternative B an NSO stipulation would be placed on areas open for leasing in the Soda Springs Hills Management Area, composed of approximately 18,700 acres (**Table 4.3.4-6**), or three percent of the public lands within the planning area. An NSO stipulation within this area of consolidated public lands restricts recovering Fluid Minerals.

The Bear Lake Plateau/Sheep Creek Hills area is recognized as having the highest potential for oil and gas within the planning area and Idaho, though no production has occurred in the area. However, of the 44,000 acres of BLM-administered public lands in this area, existing NSO stipulations to address sensitive/highly erosive soils and steep slopes would encompass 19,400 acres, or three percent of the planning area and 17 percent of the High potential oil and gas public lands within the PFO planning area.

The southeastern and western portion of the Bear Lake Plateau is in High and Medium geothermal resource potential areas. Existing NSOs would cover about 11,900 acres of Medium and High geothermal resource potential, which is two percent of the High and Medium geothermal resource potential lands within the planning area.

The Curlew area would be administratively unavailable to Fluid Mineral leasing on about 258,100 acres to protect greater sage-grouse and sharp-tailed grouse, ferruginous hawk, and other sensitive species habitat. This restriction (42% of the planning area) is in an area that has Low oil and gas potential and Low to High geothermal resource potential. Although it contains

no High potential oil and gas lands, it makes up 42,900 acres (24%) of the Medium oil and gas potential public lands. Making the area administratively unavailable affects 3,900 acres (21%) of public lands with High geothermal resource potential, 69,100 acres (43%) of the Medium potential, and 185,100 acres (43%) of the Low geothermal resource potential.

Management direction provided under Action B-ME-2.1.2 would allow for prevention or resolution of mineral trespass issues related to Fluid Mineral production that occurs on private lands adjacent to the administratively unavailable area.

Impacts on Fluid Minerals leasing and development are greater under Alternative B than under Alternatives A, C, and D.

Geophysical exploration on public lands would also be impacted under this alternative. These activities may be conducted before or after lease issuance to obtain a better understanding of subsurface geology and the potential for structure that is favorable for the formation and existence of hydrocarbon sinks and reservoirs. Although no surface disturbance would be allowed on public lands in the Soda Springs Hills Management Area (18,700 acres) and 19,400 acres within the Bear Lake Plateau/Sheep Creek Hills, geophysical activities could occur in other areas. Geophysical exploration for Fluid Mineral resources would not be allowed on the public lands within the Curlew area. However, information regarding the existence of oil and gas on these public lands could be interpreted and extrapolated from geophysical work conducted on adjacent lands. This information may not be as complete or as reliable as would information obtained by geophysical exploration activities conducted directly on public lands.

Making lands administratively unavailable for Fluid Mineral Leasing within the Curlew area has the effect of conserving any existing Fluid Mineral resources within these Medium to High geothermal potential areas and Low potential oil and gas areas to a point in the future where exploitation is allowed. Estimates of barrels of oil or energy are not available because no discoveries have been made.

Under this alternative, lands identified as closed or administratively unavailable for Fluid Mineral leasing would affect 269,300 acres, or 44% of the planning area (**Tables 4.3.4-5** and **4.3.4-6**). This does not include any High potential oil and gas resource areas but affects approximately 54,100 acres, or 31% of the public lands within the Medium potential areas. Additionally, under this alternative, approximately 3,900 acres, or 21% of the High potential geothermal resource areas, and 71,500 acres, or 45% of the Medium potential geothermal resource areas, on public lands would be affected.

Together, lands identified as closed or administratively unavailable and containing NSO restrictions affect approximately 495,200 acres (**Table 4.3.4-7**), or 81% of public lands. Timing restrictions to protect big game, greater sage-grouse and sharp-tailed grouse total approximately 83,700 acres within the 495,200 acres of affected public lands (**Tables 4.3.4-5** and **4.3.4-6**).

Closing the Soda Springs Hills Management Area to Solid Minerals leasing would result in little impact, as phosphate does not occur in the area. Closing the area to Mineral Materials disposal could result in an impact, as there are sources of stone, sand and gravel that might be useful to local highway departments, local industries, or the public.

Direction would include the pursuit of a Locatable Minerals withdrawal on approximately 15,000 acres of public lands within the Soda Springs Hills Management Area from the location of new mining claims. The north end of the Soda Springs Hills Management Area contains high calcium limestone that, in some cases, has been determined by the BLM to be a Locatable Mineral. Limestone occurs throughout the area. Some mining claims exist in the area. A withdrawal could prevent future development of an extensive limestone resource that exists there. Existing claims would be grandfathered by pre-existing rights, but development of the claims would be more difficult in an area of public lands where extensive restrictions are in place.

The NSO for the Petticoat Peak RNA would not impact Fluid Minerals beyond the current conditions, as the area is currently closed to leasing due to the WSA designation. The Petticoat RNA is in an area considered as Medium for oil and gas and Low to Medium geothermal potential. Some limestone occurs within the RNA, but no other mineralization is known to exist. Designating this 400 acre RNA is not expected to impact on Solid Minerals development.

Power sites, water reserves, communication sites, reclamation, irrigation projects, and other withdrawals would remain closed to the location of mining claims (Locatable Minerals) but would be opened for discretionary Mineral Materials disposal consideration by the BLM. This would assist in providing sand, gravel, and stone to highway departments, construction projects, and other entities if the disposal could be accomplished in a manner that did not interfere with the purpose of the withdrawal. Extensive coordination with the agency or entity utilizing the withdrawal could be necessary. In many cases, Mineral Materials disposal may conflict with the purpose of the withdrawal and no disposal would be authorized.

In Alternatives B, C, and D, the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would be utilized (Action AA-GE-3.1.1 and AA-ME-2.6.1) to design reclamation, rehabilitation, and restoration activities associated with major surface-disturbing activities associated with Solid and Fluid Minerals development. The Idaho Standards for Rangeland Health would be employed to determine the success of reclamation and in determining if additional work needs to be done.

The reclamation of minerals and energy exploration and development activities is required by various laws and regulations, and is required by the current PFO RMP. Much of the direction is general in nature. The *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would be proposed to be made part of the PFO RMP in Alternatives B, C, and D to provide additional detail and guidance that can prove helpful to minerals and energy operators who are designing reclamation plans as part of their operating plan applications. Applying the Idaho Standards for Rangeland Health would provide additional reclamation guidance appropriate for Idaho to minerals and energy developers.

It is expected that reclamation plan submittals prepared using the Idaho Standards for Rangeland Health would be more complete and comprehensive, ensuring that lands impacted by minerals and energy development activities are restored to PFC and a productive post-development land use. It is also anticipated that application of the Idaho Standards for Rangeland Health would not result in significant additional costs to minerals and energy developers on public or split estate lands since reclamation requirements already exist. The Idaho Standards for Rangeland Health would provide both government regulators and minerals and energy operators clearer

reclamation direction and objective criteria from which to design reclamation and also to measure the adequacy of final reclamation.

Application of the Idaho Standards for Rangeland Health may also reduce costs in the long term by setting clear direction in the beginning so that inadequate reclamation would not have to be revisited.

Impacts on operations when applying minerals and energy operation Standard and Guideline action items (Objective AA-ME-2.6, protection of hydrologic function and surface resource values and Objective AA-ME-2.7 prevention of release of contaminants to the environment) could be great in some cases. However most, if not all, of these actions have been, and are being, included as conditions of approval in minerals and energy operations plans. Full reclamation is currently required for all sites. BMPs, topsoil salvage, and environmental monitoring are also required. Impacts on minerals and energy operations and additional costs are expected to be Low in most cases. They are similar to requirements set in the Caribou National Forest Revised Plan (Forest Service 2003a).

In Alternative B, concentration release standards would be set primarily for the reclamation of phosphate mines where selenium and other contaminants are known to be problematic. These action levels are set for reclamation vegetation, surface, and groundwater media. They are the same, or similar to, those set as clean-up action levels in a risk management plan prepared by the State of Idaho and federal agencies studying the extent of contamination at, or adjacent to, phosphate mines in southeastern Idaho. The action levels would provide targets or standards that mining companies can use in designing mining and reclamation plans. The standards assist operators and regulators in determining when reclamation is complete or if contamination exists that requires further reclamation or remediation.

Having established standards should assist mining companies that are considering mining phosphate. These standards would aid in designing adequate mining and reclamation plans that have satisfactory mitigation practices to reduce the possibility of contaminants being released into the environment.

Split-estate management direction outlined in Objective AA-ME-2.1 would be applied to minerals and energy operations under Alternatives B, C, and D. Applying similar mitigation to private lands that overlie federal mineral estate reduces indirect effects of Mineral Leasing and development on the surface of split-estate lands. Under Action AA-ME-2.1.4, the plan provides for surface owner input in formulating appropriate mitigation measures to ensure that surface rights are not infringed. These actions could increase costs for mineral operators but would tend to make requirements more consistent over the public land and split-estate land base.

Impacts from Recreation Direction: Establishing a comprehensive travel plan as described in Alternative B would not have a great impact on minerals and energy. Any necessary overland travel using mechanized vehicles would be permitted during the review and approval of an operations plan. Mining claimants would have to comply with any travel plan restrictions or obtain a permit if operating vehicles off-road while conducting location and assessment work.

Impacts from Special Designations Direction: The effect on minerals and energy use and development from special designations involving ACECs and RNAs is discussed under Impacts

from lands and realty direction. The effect of adding an NSO to Fluid Minerals leases is discussed under Impacts from Minerals and Energy direction.

4.3.4.6 Alternative C

Impacts from Vegetation Direction: Same as Alternative B.

Impacts from Special Status Species Direction: In addition to impacts from timing restrictions and plan direction to protect sensitive species in Alternative A, avoidance of sensitive plants and habitat in 5 special areas, including a ¼-mile buffer area, could restrict minerals and energy exploration and development of Solid and Fluid Minerals. Known special status plant habitats in 5 priority geographical areas consist of approximately 170 acres in the Bear Lake Plateau/Sheep Creek Hills, approximately 80 acres near Malad, approximately 20 acres in the Deep Creek Mountains, approximately 2 acres in Stump Creek, and approximately 10 acres in the Pleasantview/Samaria area.

These areas are not known to have important Solid Leasable or Fluid Minerals resources; however the Bear Lake and Stump Creek special status plant areas are located in an area designated as High oil and gas potential. Solid Mineral Leasing and Mineral Materials permitting would not be allowed in the Malad and Stump Creek special status plant and buffer zone areas. These areas do not contain Solid Leasable Minerals, and it is anticipated that demand for any Mineral Materials could be met elsewhere.

Since the special status plant habitat is small, even when considering ¼-mile buffer zones, it is anticipated that Fluid Minerals exploration and production could reach mineral targets by directional drilling. Exploration for Solid Minerals would also likely not be impacted. It is anticipated that most Solid Minerals deposits would not coincide with special status plant habitat, as little-or-no Solid Minerals production has yet occurred near the habitat. In the case of Mineral Materials, prospective permittees could be directed to alternative sources when projects coincide with special status plant habitat.

The potential for impacts on the development of minerals and energy from applying restrictions to protect special status plants would increase as new plants are categorized as Special Status and their habitat is protected.

Impacts on Fluid Minerals resulting from NSO stipulations to protect sensitive plant species in the Bear Lake Plateau/Sheep Creek Hills area are discussed under the Impacts from Minerals and Energy section.

Impacts from Lands and Realty Direction: Impacts on Minerals and Energy use and development from lands and realty under Alternative C are similar to those identified under Alternative B except as noted here.

Lands considered for disposal or exchange may contain valuable solid or Fluid Minerals. Whereas approximately 32,200 acres of mostly isolated public land parcels throughout the planning area would be considered to be open to disposal in Alternative A, land tenure adjustments in Alternatives B, C, and D would be addressed using a 4-zone concept. Zone 4 lands would be identified for disposal from public domain and would consist of approximately

49,900 acres in Alternative C. It is estimated that approximately 24,950 acres, or 50%, may be exchanged or sold from the PFO public land base.

Another approximately 94,200 acres would be categorized as Zone 3. Alternative C plan direction states that the public land base in Zone 3 should be consolidated into larger, more manageable blocks of land having higher resource values. Parcels of public lands not having high resource values would be disposed of through sale or exchange.

It is anticipated that a portion of the estimated 24,905 acres of public lands in Zone 4 that may leave public domain would contain valuable minerals, primarily sand and gravel, stone, and other Mineral Materials. Zone 4 tracts that may have Mineral Materials are primarily located in the alluvial valleys throughout the planning area. Some isolated tracts may contain the Solid Leasable Mineral phosphate, and these are located primarily northeast of Soda Springs, east of Chesterfield Reservoir, and north of Blackfoot Reservoir. The extent and location of tracts that may contain valuable Locatable Minerals is less certain. In Zone 4, tracts northeast of Preston contain zeolite, the Soda Springs Hills area contains some Locatable-grade limestone, and other locations of metallic mineralization are known to exist.

Table 4.3.4-8 shows the extent of lands within Zones 3 or 4 according to Fluid Minerals potential. In Alternative C, Zone 4 would contain approximately 13,800 acres of land with High potential for oil and gas resources. This represents 12% of an approximate total of 116,900 acres rated as having High oil and gas resource potential within the planning area.

Zone 4 would also contain approximately 3,800 acres, or 20% of approximately 18,900 acres of public lands, with High potential for geothermal resources and approximately 14,300 acres, or 9% of approximately 159,400 acres of public lands, with Medium potential for geothermal resources. It is estimated that less than 50% of these Zone 4 lands would be sold or exchanged. This is very similar to Alternative B.

Alternatives B and C would designate the least amount of public lands (approximately 13,800 acres) with High oil and gas potential as open for disposal. Alternative C would designate the least land in Zone 3 as open for land disposal or consolidation in areas with High oil and gas, High geothermal resource, and Medium geothermal resource potential: approximately 17,100 acres, approximately 2,100 acres, and approximately 21,200 acres, respectively.

Alternatives C and B would be the most restrictive to issuing ROWs for minerals and energy development projects. The impacts of ROW direction on minerals and energy resource use and development in Alternative C is the same as in Alternative B. Alternatives C and B both exclude the consideration of ROWs in RNAs.

The withdrawal of approximately 19,200 acres of RNAs, the Soda Springs Hills Management Area, and the Bowen Canyon ACEC is discussed under Impacts from Minerals and Energy direction.

Impacts from Minerals and Energy Direction: Impacts on minerals and energy resources and use from Minerals and Energy direction in Alternative C would be the same as in Alternative B except as noted here.

Approximately 602,600 acres of public lands would be open for consideration of Fluid Minerals leasing, 347,300 acres (57%) of which would be managed with an NSO stipulation (**Table 4.3.4-7**). Because no public lands are indentified as administratively unavailable for Fluid Minerals leasing, Alternative C is less restrictive than Alternative B, based on the number of acres with an NSO stipulation.

Alternative C is the most restrictive alternative for oil and gas leasing within areas having High oil and gas potential. Alternative C compared with Alternative B is the next most restrictive alternative for leasing in Medium potential oil and gas areas and in High and Medium geothermal potential areas (**Tables 4.3.4-6** and **4.3.4-7**). The Curlew area would be open for Fluid Mineral leasing, facilitating development of primarily geothermal resources in this area, which has High (3,900 acres) to moderate potential (69,100 acres). Oil and gas potential is Low in this area.

Alternative C would apply an NSO stipulation to any oil and gas leases that are issued in the Bear Lake Plateau/Sheep Creek Hills (44,000 acres) and Soda Springs Hills Management Area (18,700 acres) to protect key greater sage-grouse habitat and special status plant habitat. This would limit the ability to explore and extract any oil and gas resources that may exist in these areas of High oil and gas resource potential. These impacts would be greater than those under Alternatives A and D, but not those under Alternative B.

An NSO stipulation in the Bear Lake Plateau/Sheep Creek Hills area would protect approximately 3,300 acres of special status plant species habitat, approximately 1,970 acres of which are in a High potential oil and gas area, approximately 200 acres are in High, and 80 acres are in Medium geothermal resource potential areas. This NSO stipulation is not anticipated to impact Fluid Minerals development because exploration and development facilities could be placed off-site.

The southeastern portion and western fringe portion of the Bear Lake Plateau are located in High and Medium geothermal resource potential areas. The remaining portion of the Bear Lake Plateau/Sheep Creek Hills are considered to be Low geothermal potential. An NSO designation on all public lands in this area would make oil and gas and geothermal exploration and development difficult. Large tracts of public lands would be restricted from surface use, precluding the recovery of oil and gas reserves and/or geothermal resources that may lie farther than ¼ to ½ mile within large tracts of public lands. The Bear Lake Plateau/Sheep Creek Hills possess a mixture of private, State of Idaho, and public lands. Because of this, it would be likely that Fluid Minerals development on federal leases could occur from operations on private or State lands adjacent to public lands encumbered with an NSO.

Geophysical exploration on public lands would be impacted in this alternative. These activities are typically conducted prior to any lease issuance to obtain a better understanding of subsurface geology and the potential for structure that is favorable for the formation and existence of hydrocarbon sinks and reservoirs. Although surface disturbance would not be allowed in Alternative C on public lands located in the Bear Lake Plateau/Sheep Creek Hills, geophysical activities could possibly occur on adjacent private or State lands. Information regarding the existence of oil and gas on public lands could be interpreted and extrapolated from the geophysical work conducted on adjacent lands. The information would not be as complete or as

reliable in many situations, however, as would the information that could be obtained by geophysical exploration activities conducted directly on public lands.

Power sites, water reserves, communication sites, reclamation, irrigation projects, and other withdrawals would remain closed for the location of mining claims (Locatable Minerals) and would be closed for discretionary Mineral Materials disposal consideration by the BLM. This would preclude providing sand, gravel, and stone to highway departments, construction projects, and other uses, even if a disposal could be accomplished in a manner that did not interfere with the purpose of the withdrawal. However, in many cases, there could be areas off site that could provide Mineral Materials.

Under this alternative, Fluid Mineral leasing closures would affect 11,200 acres, or two percent of the planning area (**Table 4.3.4-5**). This does not include any High potential oil and gas or geothermal resource areas but impacts 2,500 acres, or two percent of the Medium potential geothermal resource areas.

NSO stipulations would be applied to approximately 347,300 acres (57% of the public lands within the planning area). These areas are composed of 99,700 acres, or 85% of the High potential oil and gas areas, in addition to approximately 11,300 acres, or 60% of the High potential, and 84,000 acres, or 53% of the Medium potential geothermal resource areas.

Together, closures and NSO restrictions affect 358,500 acres (**Table 4.3.4-7**), or 58% of public lands under this alternative. Timing restrictions to protect big game, greater sage-grouse, and Columbian sharp-tailed grouse would affect another approximately 196,300 acres (**Tables 4.3.4-2** and **4.3.4-3**).

This alternative is more restrictive and affects Fluid Mineral development more than Alternatives A and D but is less restrictive in most respects than Alternative B. Alternative C is the most restrictive to oil and gas development in the High potential oil and gas areas.

Impacts from Recreation Direction: Same as Alternative B.

Impacts from Special Designations Direction: The effect on minerals and energy use and development from special designations involving ACECs and RNAs is discussed under Impacts from lands and realty direction. The effect of adding an NSO to Fluid Minerals leases is discussed under Impacts from Minerals and Energy direction.

4.3.4.7 Alternative D

Impacts from Vegetation Direction: Same as Alternative B.

Impacts from Special Status Species Direction: In Alternative D, management of special status species and vegetation would emphasize maintaining and improving important native vegetation habitats, but at a lower level than in either Alternative B or C. However, impacts on minerals and energy from timing restrictions and plan direction to protect special status species not under *Impacts Common to All Alternatives* are the same as under Alternative A.

Impacts from Lands and Realty Direction: Impacts on minerals and energy use and development from lands and realty in Alternative D are the same or similar to those identified in Alternative B except as noted here.

Lands considered for disposal or exchange may contain valuable solid or Fluid Minerals. In Alternative D, Zone 4 would identify approximately 121,400 acres for disposal from the public domain. It is estimated that approximately 60,700 acres, or 50%, may be exchanged or sold from the PFO public land base.

Approximately 423,200 acres would be categorized as Zone 3. Alternative D states that the public land base in these areas should be consolidated into larger, more manageable blocks of land having higher resource values. Parcels of public lands not having high resource values would be disposed of through sale or exchange.

Table 4.3.4-8 shows the extent of lands within Zones 3 or 4 according to Fluid Minerals potential. In Alternative D, Zone 4 would contain approximately 33,100 acres of land with High potential for oil and gas resources. This represents 28% of an approximate total of 116,900 acres rated as having High oil and gas resource potential within the planning area. This amount is about 2 ½ times the acreage proposed for disposal in Alternatives B or C.

Zone 4 would also contain approximately 4,900 acres, or 26% of approximately 18,900 acres of public lands, with High potential for geothermal resources and approximately 33,700 acres, or 21% of approximately 159,400 acres of public lands, having Medium potential for geothermal resources. Alternative D would propose to make about twice the number of acres available for disposal in High and Medium geothermal potential areas than in Alternatives B and C. It is estimated that less than 50% of these Zone 4 lands would be sold or exchanged.

Alternative D would designate a much greater amount of land available for exchange or disposal in Zones 3 and 4 in High potential Fluid Minerals areas than in any other alternative.

It is anticipated that a portion of the estimated 60,700 acres of public lands in Zone 4 that may leave the public domain would contain valuable minerals, primarily sand and gravel, stone, and other Mineral Materials. Zone 4 tracts that may have Mineral Materials are primarily located in the alluvial valleys throughout the planning area. Some isolated tracts may contain the Solid Leasable Mineral phosphate, and these are located primarily northeast of Soda Springs, east of Chesterfield Reservoir, and north of Blackfoot Reservoir. The extent and location of tracts that may contain valuable Locatable Minerals is less certain. In Zone 4, tracts northeast of Preston contain zeolite, the Soda Springs Hills area contains some Locatable-grade limestone, and other locations of metallic mineralization are known to exist.

Alternative D would be the most amenable to issuing ROWs for minerals and energy development projects. ROWs on public lands are often necessary to authorize access roads, mills, and other facilities that are critical to the development of Solid and Fluid Minerals deposits. There are no lands designated as exclusion for consideration of ROWs in Alternative D. Approximately 590,000 acres would be managed as open areas and approximately 23,800 acres of developed recreation sites, historical trails, special status species habitat, RNAs, ACECs, and WSA would be managed as avoidance areas.

ROWs could be issued in avoidance areas to support minerals and energy development activities, but would be subject to mitigation requirements. In some cases, mitigation measures might be quite costly. ROWs would be available to support minerals and energy development throughout the planning area.

The withdrawal of approximately 1,500 acres of RNAs is discussed under Impacts from Minerals and Energy.

Impacts from Minerals and Energy Direction: Impacts on minerals and energy resources and use from Minerals and Energy direction in Alternative D would be the same as in Alternative B except as noted here.

In Alternative D, approximately 602,600 acres of public lands would be open for the consideration of Fluid Minerals leasing, and approximately 315,300 acres would be stipulated NSO (**Table 4.3.4-7**). No NSO Fluid Mineral Leasing stipulations would be applied unilaterally over the Bear Lake Plateau/Sheep Creek Hills or the Soda Springs Hills, except for 3,600 acres of LWCF-acquired lands within the Soda Springs Hills.

All the Curlew area would be open for consideration of Fluid Mineral leasing. This action would facilitate leasing and development of Fluid Minerals—primarily geothermal—in those areas, many of which have High geothermal mineral resource potential. Alternative A, followed by Alternative D, would be the most amenable to leasing without an NSO restriction in the High oil and gas area and the High and Medium geothermal resource areas.

Under this alternative, Fluid Mineral leasing closures would affect 11,200 acres, or two percent of the planning area (**Tables 4.3.4-5** and **4.3.4-6**). This does not include any High potential oil and gas resource areas, but it impacts 2,500 acres, or two percent of the High potential geothermal resource areas, and 8,800 acres, or two percent of the Medium potential geothermal resource areas.

NSO stipulations would be applied on approximately 315,300 acres (51% of the public lands within the planning area). These areas are composed of 68,200 acres, or 58% of the High potential, and 104,400 acres, or 44% of the Medium potential oil and gas areas. NSO would also apply to 8,200 acres, or 44% of the High potential, and 72,100 acres, or 45% of the Medium potential geothermal resource areas.

Together, closures and NSO restrictions would affect approximately 326,600 acres (**Table 4.3.4-7**), or 53% of public lands under this alternative. Timing restrictions to protect big game, greater sage-grouse, and Columbian sharp-tailed grouse would affect another approximately 226,300 acres (**Table 4.3.4-2** and **4.3.4-3**).

Alternatives D and A are the least restrictive and impact Fluid Mineral development less than the other alternatives.

Other impacts would be the same as in Alternative A, except that all public lands not acquired with LWCFs within the Soda Springs Hills Management Area would be open for the consideration of Mineral Materials disposal, Solid and Fluid Minerals leasing (with no NSO - **Table 4.3.4-6**), and the location of mining claims. This alternative would allow minerals and

energy development on approximately 15,000 acres that would be restricted in Alternatives B or C.

Leasing and Mineral Materials disposal are BLM discretionary actions. The BLM would consider impacts on other resources prior to leasing and Mineral Materials disposal. The BLM could make a decision to not lease or dispose of Mineral Materials.

The north end of the Soda Springs Hills Management Area contains high calcium limestone that has been determined by the BLM to be a Locatable Mineral. Limestone occurs throughout this Management Area. Various mining claims also exist in the area. The area would remain open to operation of the General Mining Laws which allow the location of mining claims. Any mining operations proposed under a mining claim would be reviewed using NEPA analysis and appropriate conditions of approval (mitigation measures) would be applied. In some situations where exploration activities would not exceed 5 acres, a Notice of Intent may be filed that would not be assessed under NEPA. The operation would still be bonded by the BLM, however; and it would need to take measures to protect the environment.

Impacts from Recreation Direction: Same as Alternative B.

Impacts from Special Designations Direction: The effect on minerals and energy use and development from special designations involving ACECs and RNAs is discussed under Impacts from lands and realty direction. The effect of adding an NSO to Fluid Minerals leases is discussed under Impacts from Minerals and Energy direction.

4.3.4.8 Cumulative Impacts

Cumulative impacts are defined as "the impacts on the environment, which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.7 and 1508.8) The geographical area identified for cumulative impact analysis for minerals and energy is considered to be the PFO of southeastern Idaho.

Past and Current Actions: Past and current minerals and energy development trends are discussed in Chapter 3.

Public lands have been available for minerals and energy development in the West since the beginning of settlement. The amount of public lands impacted by historical, current and future Mineral Materials, Locatable Minerals, and Solid Leasable Mineral development is shown in **Table 4.3.4-10** and discussed in Chapter 3.

Various laws (see Chapter 2), regulations, and policy have accomplished management of federally owned minerals. Minerals management has been included in BLM land use plans since the passage of FLPMA in 1976. The intent of Federal statute has been to allow the consideration and development of minerals and energy resources in a manner compatible with other resources and resource uses. Lands within the planning area that are proposed to be open to solid and Fluid Minerals and energy development have typically been open historically. Lands are closed to minerals and energy development only if no other suitable alternative exists, or if required to do so by statute, regulation, or policy.

Some changes to the existing situation (Alternative A - No Action) would be proposed in Alternatives B, C, and D to provide better direction for minerals and energy development, to mitigate adverse impacts, and to ensure that minerals and energy development is compatible with other resources and resource uses. The overall effect on minerals and energy use and development from each alternative is discussed in **Section 4.3.4.3**.

Future Actions: Future minerals and energy development trends are discussed in Chapter 3.

In all alternatives, minerals and energy resources would be made available for development on most public lands. It is anticipated that the amount of development of these resources would not change in any alternative except in Alternative C, which would propose designating large areas in the Soda Springs Hills Management Area and Bear Lake Plateau as NSO for Fluid Minerals development. Alternative C may curtail some interest in Fluid Minerals leasing. An NSO restriction in a High potential resource area would tend to decrease the value of a lease. It would also decrease the ability to reach, or preclude a developer from reaching, oil and gas or geothermal resource targets using off-site directional drilling.

Fluid Minerals

The amount of public lands within southeastern Idaho impacted by historical, current and future oil and gas and geothermal energy development is shown in **Table 4.3.4-9.**

Table 4.3.4-9. Cumulative Approximate Acres of Fluid Mineral Surface Disturbance Within Southeastern Idaho for all Public or Split-Estate Lands

Fluid Mineral Resource	Number of Holes	Acres Disturbed	Acres Reclaimed	Acres Not Reclaimed
Oil and Gas				
Pre 2006 (BLM or Split Estate)	51	294	265	29
Current (BLM or Split Estate)	0.0	0.0	0.0	0.0
Projected 2006-2025 (BLM or Split Estate)	5	185	185	0.0
Total Acres Cumulative Oil and Gas	56	479	440	29
Geothermal Resources				
Pre 2006 (BLM or Split Estate)	0.0	0.0	0.0	0.0
Current (BLM or Split Estate)	0.0	0.0	0.0	0.0
Projected 2006-2025 (BLM or Split Estate)	3	129	129	0.0
Total Acres Cumulative Geothermal	3	129	129	0.0

Notes:
1. See assumptions in section *4.3.4.2, Methods of Analysis.*
2. Projected surface disturbance totals also include production facilities.
3. Production facilities may occupy public lands for the long term but would ultimately be reclaimed.

As discussed in the RFDS for Fluid Minerals in **Appendices P** and **Q**, it is anticipated that projected surface disturbance resulting from Fluid Minerals Leasing would occur on public and private lands where the federal government owns the subsurface mineral estate. As shown in **Table 4.3.4-9**, although approximately 185 acres may be disturbed by oil and gas operations and approximately 129 acres may be disturbed by geothermal operations over the next 20 years, most Fluid Minerals disturbance can be reclaimed to a productive post-development use over the long

term. The native character of the land may be changed, but reclamation would be required to provide habitat and vegetative cover for soil stabilization.

It is anticipated that within southeastern Idaho the Forest Service would allow the issuance of some geothermal or oil and gas leases over the next 20 years. Additional surface disturbance is anticipated to occur from Fluid Minerals exploration, development, and production activities located on National Forest System, State of Idaho, and private lands. The extent, however, is unknown. The RFDS did not include private, State, or National Forest System lands, many of which are in High potential geothermal and oil and gas resource areas. It is quite possible that surface disturbance from Fluid Minerals exploration and operation on these lands would be of a similar or larger amount than that what is estimated for public lands. State and federal laws require reclamation on all lands within the State of Idaho. It is likely that impacted sites on National Forest System land would be fully reclaimed.

It is anticipated that Fluid Minerals exploration and development could occur on public lands over the next 20 years. The production and utilization of these resources would begin depletion. The extent of Fluid Minerals resources within the PFO is not well known. Therefore, it is difficult to determine the extent of depletion that would occur. Depletion of worldwide Fluid Mineral resources and increased demand for energy would tend to increase interest in leasing and development within the PFO.

The rate of exploration and development of Fluid Mineral resources may decrease in the future if more public lands are closed or otherwise intensely restricted. Impacts from more land occupancy restrictions would be similar and be cumulative to those discussed in the *Impacts from the RFDS (Common to All Alternatives)* of Fluid Minerals Section of 4.3.4.3. Development of alternative energy sources could also reduce the rate of Fluid Mineral development.

Mineral Materials

Mineral Materials demand is expected to increase in proportion to population growth in southeastern Idaho. Sand, gravel, and stone would be necessary for construction projects and highway maintenance. Over the next 20 years, it is projected that Mineral Materials would disturb approximately 760 acres of public lands; and approximately 530 acres would be reclaimed. The IDL reports a cumulative total of approximately 7,100 acres of disturbance and proposed disturbance from sand and gravel under permit on federal, state, and private lands in the nine-county area encompassed by the planning area. Sand and gravel operations on public lands constitute approximately 7% of the total sand and gravel disturbance within this area.

With the increased demand for these materials due to expanding communities, residential areas could encounter impacts on visual resources, air quality, soundscapes, and other resources and resource uses from sand and gravel operations. It becomes difficult for sand and gravel operations to obtain county permits if adjacent residents do not want gravel pits and their associated impacts nearby. These operations then look for new, more-remote locations such as unoccupied public lands. As more Mineral Materials operations would be approved on public lands, environmental impacts could increase. This cumulative effect on Mineral Materials would be similar in all alternatives.

Solid Leasable Minerals

Phosphate mining, the only commercially developed Solid Leasable Mineral within the planning area, has impacted approximately 15,000 acres of federal, state, tribal, and private lands in southeastern Idaho since the early 1900s. Most of this disturbance has occurred since 1950, when the major fertilizer and elemental phosphorus producers started mining in southeastern Idaho. It is anticipated that approximately 5,300 more acres would be disturbed over the next 20 years for a cumulative total of approximately 20,300 acres. Most of this disturbance has been on, or adjacent to, federal phosphate leases having a mixture of surface ownership. The surface ownership/management of this cumulative past, present, and future disturbance is projected to be: 47% federal (Forest Service 42%, BLM 5%), 23% tribal, 10% state, and 19% private.

Since the late 1990s, the existence and impact of selenium and other contamination associated with phosphate mining on federal leases and other properties in southeastern Idaho has been identified. Cumulative impacts include the elevation of selenium and other contaminants in vegetation at mine sites and in some portions of the Blackfoot and Salt River drainages. Some contaminant impacts have been measured above federal and state standards. Extensive resources have been expended to investigate the contamination problem and to formulate methods to remediate existing contaminated sites and waters.

EISs have assessed new phosphate mining proposals in detail to determine ways to prevent, or to acceptably reduce, the contamination of land, water, and reclamation vegetation through the application of new management practices at mining sites. These efforts have caused operating phosphate mines to employ state-of-the-art mitigation measures. Although the majority of these practices are anticipated to be effective, many mitigation measures remain unproven and require extensive environmental monitoring to determine their effectiveness. Monitoring is also used to determine if, and what, changes to mitigation may be needed.

As shown in **Table 4.3.4-10**, the amount of reclamation has not been fully determined, as existing water, soil, and vegetation contamination issues remain to be resolved at historic phosphate mining sites. Current and future mining would employ measures that are expected to reduce selenium and other contamination. Typical phosphate mine reclamation plans approved by the BLM in the past several years show the reclamation of 90-95% of the disturbed site. This translates into the reclamation of around 5000 acres of the approximately 5300 acres expected to be impacted by phosphate mining over the next 20 years. As a rule, all areas amenable to reclamation are addressed, with the exception of rock high walls. This development and reclamation of phosphate mining sites is anticipated in all alternatives.

Locatable Minerals

Past mining disturbance from Locatable Minerals on public lands in the planning area, notably limestone and precious metals, is estimated to be around 24 acres. Approximately 97 acres are presently disturbed and another, approximate 105 acres of Locatable Minerals exploration and mining activities are projected to be disturbed over the next 20 years. This represents approximately 10% of the approximately 1,979 acres reported by the IDL that are presently disturbed or anticipated to be disturbed for Locatable Minerals on federal, state, and private lands within the planning area.

Table 4.3.4-10. Approximate Acres of Cumulative Surface Disturbance for All Past, Current, and Future Mineral Material, Locatable Mineral, and Solid Leasable Mineral Activities within Southeastern Idaho by Surface Agency/Owner

Mineral Resources	Number of Permits	Acres Disturbed	Acres Reclaimed	Acres Not Reclaimed
Mineral Materials				
Pre 2006 (BLM or Split Estate)	36	276	206	70
Current (BLM or Split Estate)	21	150	86	64
Projected 2006-2025 (BLM or Split Estate)	34	333	233	100
Total Cumulative Mineral Materials	91	760	526	234
Locatable Minerals				
Pre 2006 (BLM or Split Estate)	11	24	22	2
Current (BLM or Split Estate)	1	97	19	78
Projected 2006-2025 (BLM or Split Estate)	11	105	83	23
Total Cumulative Locatable Minerals	23	226	123	102
Solid Leasable Minerals (Surface Agency/Owner)				
USFS, Pre 2006 & Current	83 Total Active Federal Leases	5,191	Not Determined	Not Determined
USFS, Projected 2006-2025		3,356	Estimate >90%	Estimate <10%
BLM, Pre 2006 & Current		475	Not Determined	Not Determined
BLM, Projected 2006-2025		479	Estimate >90%	Estimate <10%
Tribal, Pre 2006 & Current		4,736	Not Determined	Not Determined
Tribal, Projected 2006-2025		0.0	Estimate >90%	Estimate <10%
State of Idaho, Pre 2006 & Current		1,612	Not Determined	Not Determined
State of Idaho, Projected 2006-2025		480	Estimate >90%	Estimate <10%
Private, Pre 2006 & Current		2,970	Not Determined	Not Determined
Private, Projected 2006-2025		938	Estimate >90%	Estimate <10%
Total Cumulative Solid Leasable Minerals		20,236	Not Determined	Not Determined

Notes:
1. See assumptions in section *4.3.4.2, Methods of Analysis*
2. Most acreage figures are estimates.
3. Projections are made by BLM minerals and energy specialists considering current production and demand levels.
4. Historic phosphate mines are being investigated under Comprehensive Environmental Response, Compensation, and Liability Act. Suitability and extent of final reclamation has not yet been determined.
5. Reclamation would occur on all amenable areas, typically 90-95% of the disturbed site. Rocky areas like high walls are not usually reclaimable.
6. Current phosphate mining employs BMPs designed to eliminate or control contaminant release.
7. Totals may not sum properly due to rounding.

It is estimated that, in 20 years, the cumulative totals would be approximately 226 acres disturbed, approximately 123 acres reclaimed, and approximately 102 acres not reclaimed at Locatable Minerals development sites on public lands. Most of the acreage not reclaimed consists of portions of open pits/quarries that are not backfilled and large high walls that are not reclaimable. It is anticipated that future Locatable Minerals development activities on public lands would continue to comprise about 10% of the overall impacts on southeastern Idaho in all alternatives.

All Solid Minerals:
With information obtained from the IDL and the BLM, it is estimated that, over the next 20 years, the cumulative acres disturbed by all Solid Minerals development activities on approximately 5.14 million acres of federal, tribal, state, and private lands in the planning area would be between 0.5% and 1.0% of the overall land base.

All Minerals:
Continued development of minerals and energy resources would impact air, water, lands, and land uses. Typical issues associated with the development of minerals and energy resources on federal, state and private lands involve sedimentation of surface water and the rehabilitation of disturbed lands. The extent of these impacts on public lands is discussed in other sections of this document. Reasonable alternatives and mitigation measures are applied to minerals and energy projects that occur on federally managed lands and that are analyzed through the NEPA process.

The State of Idaho, counties, and local governments also consider alternatives and applicable mitigation measures. However, the state and local governments in Idaho do not normally have an equivalent review process to the federal NEPA process. It is anticipated that impacts from minerals and energy projects located on federal lands would add to cumulative impacts from similar projects on State and private lands. The total cumulative impacts would be considered by the BLM when assessing future minerals and energy development applications. Applicable laws, regulation, established requirements, and management direction would be considered in any application approved by the BLM.

Developing minerals and energy resources on public lands would tend to deplete these nonrenewable resources. This effect is cumulative over time. Large deposits of Mineral Materials exist on federal, private, and state lands within the planning area. Sand, gravel, and stone depletion could be small when measured against the extent of these resources. The phosphate industry has been operating on a large scale on federal leases since the early 1950s. Approximately half of the economically feasible phosphate resource currently under lease has been mined. Phosphate would be depleted in the future as mining continues. It is estimated that reserves that are currently under lease and that are presently economically feasible to mine would last another 40-50 years. Additional reserves exist in southeastern Idaho that may become economically feasible to mine after that period. The extent of precious metals and other Locatable Minerals within southeastern Idaho is not well known, but these resources would be depleted if development occurs. Depletion would occur in all alternatives. Higher interest in exploring and developing minerals and energy within the planning area could increase as resources such as oil and gas are depleted elsewhere.

Alternatives B, C, and D would incorporate *Idaho Standards for Rangeland Health* (management direction AA-GE-3.1.1 and AA-ME-2.1.4, AA-ME-2.2.1, and **Appendix A**) (BLM 1997a) to reclamation requirements for all minerals and energy exploration and development approvals. At phosphate mining and other applicable sites, management direction to prevent or control sediment and the release of contaminants outlined under Objective AA-ME-2.3 would apply (see also **Appendix C**). Action AA-ME-2.3.8 (**Appendix I**) sets reclamation and release standards for contaminants. Mineral operation standards and guidelines would be set by management direction AA-ME-2.2.2 to assist in reducing environmental impacts and pollution from mining and all other minerals and energy development activities.

This direction would ensure that additional provisions are made at the minerals and energy operations planning stage to reduce environmental impacts and to ensure that impacted lands are rehabilitated, as practical, to properly functioning conditions at the end of minerals and energy development activities. These and other requirements set as management direction in Alternatives B, C, and D would increase the costs of compliance in some instances.

Management direction in each alternative requires minerals and energy exploration and development operators to apply various mitigation measures to reduce impacts on other resources and resource uses. Besides restrictions that are placed on minerals and energy development by management direction, additional restrictions are applicable from federal, state, and local laws and regulations. Management direction is often formulated by legal requirements and cannot be changed by the planning process. However, the intent of the planning process is to develop management direction to mitigate environmental effects that may not be regulated specifically by law, but would tend to assist in complying with law or achieving DFCs.

Compliance with each requirement adds cumulatively to the cost of operating a mine, production well, or geothermal energy facility. In addition to increased cost, some management direction would tend to result in delays, increased business risk, and increased complexity of operations in all alternatives. Examples of this type of plan direction are the application BMPs (e.g., weed control, soil erosion and loss, selenium/contaminant control), meeting visual resources objectives, setting reclamation standards, applying operational standards and guidelines, reducing soil loss and stream sedimentation, avoiding or salvaging cultural sites, designating NSOs for Fluid Minerals activities, applying timing or season-of-use restrictions, salvaging and protecting certain paleontological resources, identifying special management areas, and others.

Factors that add cumulatively to the delays, business risk, and operational complexities that minerals and energy developers already face tend to decrease interest in minerals and energy development. In some cases, increased costs could render a particular proposal to be uneconomical; and development actions may be dropped. In most cases, these costs are typical of the cost of doing business in the US on public lands.

4.3.4.9 Tribal Treaty Rights and Interests

Designating lands as available for minerals and energy leasing and permitting would subject those lands to potential impacts from exploration and development. Impacts on vegetation and fish and wildlife resources on public lands may interfere with tribal treaty rights for a period of time. Consideration for restoring traditionally used native plants and habitat for game animals in land reclamation requirements would reduce any long-term effects on treaty rights. Minerals and energy exploration and development activities may impact approximately 1,200 acres of public lands (0.20%) within the planning area during the next 20 years. Approximately 1,080 acres (0.18%) would be suitable for revegetation, leaving approximately 151 acres (0.02% of the public land base) not able to be reclaimed in which the exercising of traditional cultural practices could be lost.

4.3.5 RECREATION

4.3.5.1 Summary

The proposed management direction in various alternatives would result in a wide range of effects on recreation. For example, surface-disturbing activities such as vegetative treatments, wildland fire management, and mineral development would have a short-term effect on users who desire to use those public lands when they are closed. However, the result of these activities may expand opportunities for users in the long term if, for example, additional recreation access is created in an area that was previously inaccessible. Furthermore, the protection of special designations may expand opportunities for recreational users seeking more primitive experiences, but may further restrict OHV activity in those areas.

The BLM's OHV designations are as follows (Section 3.3.5.5 for a more detailed discussion of current management):

- Open: The BLM designates areas as open for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.
- Limited: The BLM designates areas as limited where it must restrict OHV use in order to meet specific resource management objectives. These limitations may include restricting the number or types of vehicles, limiting the time or season of use, restricting to permitted or licensed use only, limiting use to existing roads and trails, and limiting use to designated roads and trails. The BLM may place other limitations to protect resources, particularly in areas that OHV enthusiasts use intensely or where they participate in competitive events.
- Closed: The BLM designates areas as closed if closure to all vehicular use is necessary to protect resources, to ensure visitor safety, or to reduce use conflicts.

Until future completion of travel management plans, all open and undesignated areas would be limited to designated or existing routes. Limiting OHV use in certain areas would reduce the overall mileage available for OHV use. Managing for legitimate, intensive motorized opportunities is considered in alternatives B and D, which would impact some OHV users by providing intensive use routes of limited size where uses such as motocross and rock crawling may be allowed. Acquiring additional lands would affect recreational users by expanding, or consolidating public lands available for recreation. Additional routes could be designated on these lands, expanding the transportation network for OHV users. Land disposals through sales may reduce the area of public land available for recreating or displace recreation activities. **Table 4.3.5-1** provides a comparison of SRMA and ERMA acres and OHV designations by alternative.

Table 4.3.5-1. Approximate Acres of Special Recreation Management Areas, the Extensive Recreation Management Area and Off-Highway Vehicle Designations by Alternative

SRMA/ERMA Name	Alternative			
	A	B	C	D
Pocatello SRMA	33,400	33,400	33,400	33,400
Blackfoot River SRMA	21,800	21,800	21,800	21,800
Oneida Narrows SRMA	N/A	3,600	3,600	N/A
Campgrounds SRMA	N/A	N/A	430	N/A
Pocatello ERMA	558,600	555,000	554,570	558,600
OHV Designation				
Open	61,300	0.0	0.0	0.0
Limited	199,000	601,100	601,100	601,100
All vehicles limited to designated routes Snowmobiling Not Allowed	N/A	62,100	62,100	28,700
All vehicles limited to designated routes, including snowmobiles	N/A	0.0	286,500	0.0
All vehicles limited to designated routes, except snowmobiles - Snowmobiling Not Restricted	N/A	252,500	252,500	572,400
Closed	1,300	12,700	12,700	12,700
Not Designated	352,200	0.0	0.0	0.0

4.3.5.2 Methods of Analysis

Impact analysis and conclusions are based on IDT knowledge of the planning area and review of literature. Impacts on recreation resources and OHV/travel management activities are discussed separately unless otherwise specified. Both effects are quantified where possible, and, in the absence of quantitative data, qualitative effects are presented, based on professional judgment.

Indicators:

- The number of SRMAs identified and/or the total acreage included within SRMAs.
- Management actions within SRMAs that result in changes to the ROS physical, social, and/or administrative settings.
- Acres designated as open, limited, or closed for OHVs.
- Change in the number/total miles of designated routes.

Methods and Assumptions:

- Over the planning period, it is expected that demand for recreational use would continue to increase, and new/unforeseen forms of recreation that are not an issue today may evolve into major recreation issues during the planning period – just as mountain biking

and ATVs evolved into major recreation activities over the life of the 1987 Pocatello RMP.

- Population and visitor use numbers are likely to continue to increase over the planning period at an estimated annual rate of 1-4%.
- The incidence of resource damage and conflicts among recreationists involved in mechanized, motorized, and non-motorized activities would increase with increasing use of public lands.
- SRPs provide a tool to manage commercial, competitive, and organized events, as well as concessions and special use areas. Terms and conditions would be included in all SRPs that would reduce impacts for these activities, in comparison to allowing these activities to take place with no restrictions.
- Following completion of this RMP, comprehensive travel management plans would be prepared for the planning area, which would include public involvement, NEPA analysis, and the designation of routes in limited areas.
- The designated route system would provide access for visitors, permittees, and landowners and for administrative needs while reducing impacts on other resources.

In all alternatives, Recreation direction would not be affected by Air Quality so this resource is not further addressed under this section.

4.3.5.3 Impacts Common to All Alternatives

Impacts from Cultural Resources Direction: Management direction for cultural resources would protect resources of interest to the recreating public. These measures could also lead to restricting the development of recreational facilities and opportunities. Management actions that develop interpretive signage, informative maps, and cultural resource plans would enhance recreational experiences through education.

As cultural resource sites are identified and additional protection measures are implemented, there would be the potential to reduce the total number and/or length of designated routes.

Impacts from Soils Direction: Protecting sensitive soils could restrict or exclude recreational activities. OHV use, camping, and mountain biking may be restricted in areas with erosive soils. Management actions to protect sensitive soils and reduce erosion levels would affect OHV users by implementing seasonal restrictions, such as those for the Pocatello Watershed, or by reducing the total number and/or length of designated routes.

SRPs would include terms and conditions that would authorize only those activities that would be consistent with soils (as well as other resources) management objectives. Restrictions may include seasonal restrictions, using only designated routes, and avoiding certain habitats.

Impacts from Paleontological Resources Direction: Increased measures for paleontological resources would protect these resources of interest to the recreating public. These measures could lead to restricting the development of recreational facilities and opportunities. Management actions that develop interpretive signage would expand recreational experiences through education. As paleontological resource sites are identified and additional protection measures are implemented, short-term or long-term route closures could restrict OHV use.

Impacts from Vegetation Direction: Vegetation treatments could indirectly impact recreationists by improving conditions for hunting, fishing, and wildlife viewing over the long-term. A long-term impact would result from vegetation removal, which would change the visual quality of the landscape. There could also be short-term impacts on recreation users when facilities, trails, and routes are closed during treatments. These closures would affect recreation opportunities by temporarily limiting access and altering recreation use patterns. Vegetation treatments could also have short-term impacts on recreation from noise and increased vehicle traffic on roads. There is potential for seasonal closures or restrictions and/or a reduction in the total number or length of designated routes in order to meet vegetation management objectives.

Impacts from Fish and Wildlife Direction: Protecting and improving fish and wildlife habitat would continue to provide and improve opportunities for recreational uses such as hunting, fishing, wildlife viewing, hiking, horseback riding, mountain biking, and OHV use.

Established criteria to protect fish and wildlife habitat could create short-term impacts on OHV users when existing routes are closed for construction or rehabilitation or when fences are modified. These closures would affect OHV opportunities by temporarily limiting access and altering recreational use patterns. Long–term impacts could include actions such as seasonal restrictions or reducing the total number and/or length of designated routes for motorized and mechanized travel.

SRPs would include terms and conditions that would authorize only those activities that are consistent with Fish and Wildlife (as well as all other resources) management objectives. Restrictions may include seasonal restrictions, using only designated routes, avoiding certain habitats. Management actions could lead to restricting development of recreation facilities in sensitive areas.

Impacts from Special Status Species Direction: Seasonal restrictions and/or reductions in number and total miles of designated routes may be implemented to protect special status species, potentially restricting motorized and mechanized travel, and permitted activities. Special Status Species management would affect recreation by increasing restrictions on certain activities. Taking corrective actions, such as initiating temporary emergency closures, seasonal closures or amending route designations through travel management plans, would displace recreational activities in areas identified for species or habitat protection. As a result, wildlife and habitat would improve, thereby improving such recreational experiences as wildlife viewing.

Measures for protecting special status species would seasonally, and possibly permanently, preclude snowmobile and OHV use in certain areas, resulting in short-term and possibly long-term impacts on snowmobile/OHV users. Areas with highly sensitive special status species may require an area closure; however, protection could also be addressed by adjusting route designation for motorized and mechanized travel in the travel management plans, while still leaving the area limited.

SRPs would include terms and conditions that would require the permitted activity to avoid impacting special status species habitat and/or comply with seasonal restrictions and buffer zones.

Impacts from Visual Resources Direction: Management direction for visual resources would provide varying levels of protection for scenic quality based on the VRM class for each given special designation. VRM Class Management Objectives may impose some level of restriction or modification to the development of recreation facilities, or roads and trails. Regardless of the project's VRM Class, it would be indirectly impacted by visual resources direction, which provides input to minimize disturbance to scenic qualities in order to repeat the basic elements of the landscape, such as color, line, texture, and form.

Impacts from Water Resources Direction: Management direction to protect water resources may require seasonal restrictions, resulting in short-term impacts for OHVs and permitted activities (SRPs). There would be potential to reduce the total number and/or length of designated routes in order to meet management objectives. There are currently no seasonal restrictions tied to water resources direction; however it's possible that they could be implemented to meet management objectives.

Impacts from Wildland Fire Management Direction: Fire suppression and/or treatment activities may create undesignated routes, resulting in a short-term impact. These undesignated routes could be discovered by OHV enthusiasts or other trail users, resulting in a long-term impact. Treatment activities such as prescribed fires, mechanical, chemical, or hand treatment may result in short-term displacement for recreationists, yet provide long-term impacts by improving the LHC.

Road closures and area closures during times of wildfire activity or severe fire danger would temporarily remove or displace access and recreation opportunities on public lands. However, these closures would help to protect the safety of those recreationists who use the area.

Impacts from Forestry Direction: Forestry activities may create unauthorized routes for motorized vehicles, which could cause short term impacts for recreational use and increase the potential for the spread of invasive species/noxious weeds. However, if trail users discover and begin to use the route, there could be a long-term conflict with unauthorized use of an undesignated route, which would increase the potential for the spread of invasive species/noxious weeds.

Collecting forest and vegetal products, such as Christmas tree cutting, would have a minimal short-term effect on recreational users as these activities would alter the vegetative cover, temporarily changing wildlife forage and habitat, would have an indirect impact on activities such as hunting and wildlife viewing.

Impacts from Lands and Realty Direction: There has been and would continue to be a potential to reduce, increase, or displace recreation opportunities through land tenure adjustments. Lands identified for disposal could lead to a long-term impact on recreational users by decreasing or displacing the area of public lands available for recreation. Alternative C, which recognizes the smallest amount of acreage considered for disposal, has the smallest potential to affect recreationists. Alternative D, which identifies the greatest acreage possible for disposal, would create the greatest impact on recreation opportunities. Lands and realty actions would change outdoor recreational experiences by altering access patterns and temporarily displacing recreational opportunities such as hunting and fishing.

Any land that is disposed of decreases the overall acreage of lands available to the public for recreation. As population and recreational activities continue to increase by number, more individuals would be concentrated on less public lands, increasing competition for existing resources and activities. Recreationists would experience long-term impacts as the area of public lands available for recreation is reduced; however, land exchanges would facilitate increased public access to other desired recreation resources.

Impacts from Livestock Grazing Direction: Livestock grazing management actions would include implementing the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a), which requires meeting standards for vegetation health, wildlife habitat, and riparian habitat. As a result, recreational opportunities, such as hunting, fishing, and wildlife viewing would be affected. Over approximately 45,000 acres of livestock grazing allotments overlap SRMA designations. Adjustments to livestock grazing allotments may interfere with recreational use of the public lands, sometimes temporarily displacing recreational activities from an area where intensive livestock grazing is taking place or altering recreational access and use patterns due to altering fence locations.

Adjusting portions of livestock grazing allotments with fence modifications would alter OHV travel patterns and interfere with OHV access to some areas. New or existing routes established for livestock grazing management practices are not automatically designated as routes. If the route were recognized as a designated route, it would provide additional OHV opportunities. If the route is not a designated route, use of the route must be authorized in a permit, and be used only for activities associated with the permit.

Impacts from Minerals and Energy Direction: Management direction for minerals and energy provides protection to developed recreation sites/campgrounds through implementing an NSO stipulation on all Fluid Mineral leases. Mineral development could create both long-term and short-term impacts on recreational resources by changing the natural setting to a more developed one during exploration and development activities. The impacts would depend on the location of any exploratory and development activities. Although a majority of the planning area is open to Mineral Leasing, permitting, and claim location (ranging from 89-98%, depending on the alternative and the type of mineral), the potential for impacts would be relative to the area available for exploration and development. It is reasonable to expect that less than 1/2% of the planning area would be subject to mineral exploration or development of any kind.

Impacts from the RFDS of Fluid Minerals Management Direction: The estimated 185 acres of disturbance for oil and gas leasing in the Bear Lake area would create a short-term impact on recreational resources by changing the natural setting to a more developed one during exploration and development. Long-term effects would result from permanent alterations to the natural environment that would change the quality of the outdoor experience. Similar effects would be created by geothermal leasing, estimated to affect approximately 129 acres in the planning area. The impact would depend on the location of the exploration and development activities. All acres would be reclaimed following lease/development activities. Overall, Fluid Mineral Leasing acreages are very low when compared to acres available for recreational opportunities in the planning area.

Impacts from Recreation Direction: Recreation management direction would continue to support a wide variety of recreational opportunities in the planning area, including hunting,

fishing, camping, hiking, OHV use, mountain biking, horseback riding, and snowmobiling. The BLM would continue to manage 11 developed recreational sites and several dispersed recreation sites/areas. Continuing to authorize SRPs for recreational uses of public lands for commercial hunting and fishing, yurt rentals, and organized events would add to the overall range of recreational opportunities available in the planning area. Features developed to address travel management, such as signs and maps, would provide a long-term impact on all recreational users by educating visitors and adding a management and law enforcement presence in the field.

In all alternatives, the PFO would continue to manage the Blackfoot River SRMA (21,800 acres) and the Pocatello SRMA (approximately 33,400 acres). Recreation management direction in SRMAs would provide for specific structured recreation opportunities (e.g., activity, experience, and benefit opportunities). Management direction for ERMAs would be more custodial in nature and address only activity opportunities.

In all alternatives, continuing to authorize SRPs for recreational uses of public lands, such as commercial use, competitive use, vending, special area use, and organized groups, would add to the overall range of recreational opportunities available in the planning area. As the recreation field expands and new recreation activities are created, additional special recreation use permits would be allowed, on a case-by-case basis. All SRPs would include terms and conditions needed to authorize the event or activity, while reducing conflict with management objectives for recreation and other resources.

Explicit recreation management actions to achieve specific defined opportunities or benefits would not occur in the ERMA and recreation experiences would be variable and unpredictable.

Impacts from Special Designations Direction: WSAs would continue to be managed under the BLM's IMP, which provides protective management based on using the non-impairment standard. WSAs and RNAs would be designated as closed to OHV use, which would protect the resources that afforded these areas special designation. Restrictions would be placed on motorized travel within the 250-foot corridor for all historic trails.

4.3.5.4 Alternative A

Impacts from Recreation Direction: Recreation is recognized as the principal use of lands in the Blackfoot River SRMA (approximately 21,800 acres) and the Pocatello ORV SRMA (approximately 33,400 acres), totaling approximately 55,200 acres, or 9% of the planning area. Acquiring legal access to an additional 44 miles of roads and trails would open approximately 37,300 acres to the public that would be primarily for recreation. Recreationists would be affected by the increase in access to public lands, which would provide additional route and trail networks for both motorized and non-motorized travel.

Changes to OHV designations are summarized in **Table 4.3.5-1**. OHV management in this alternative provides the most motorized public access of any of the alternatives. OHV use on public lands would continue to be managed in accordance with existing OHV designations, including approximately 61,300 open acres, approximately 1,300 closed acres, and approximately 199,000 acres limited to designated routes (approximately 11,500 acres of which are closed to snowmobiles). The BLM has not yet designated approximately 352,200 acres.

This alternative essentially recognizes approximately 413,500 acres (or 67% of the planning area) as open to cross-country travel (approximately 61,300 acres open and approximately 352,200 acres not designated). Allowing this level of continued OHV use on public lands in the planning area would not address resource and user conflict issues and would result in the eventual closure of areas to protect resources from extensive damage.

Continuing to manage approximately 79,600 acres as limited to existing roads and trails would not be an effective tool to manage the increasing problem of route pioneering and the increasing proliferation of routes throughout the planning area. Although management specifies that these areas are limited to what is already in existence, once a 2-track has been pioneered, it is commonly considered existing by other OHV users and would remain a vehicle route unless signs are erected to declare that it is closed or is being rehabilitated. In current management, route proliferation would continue, which would create impacts on nearly all other resources. Associated closures would also impact OHV use.

4.3.5.5 Alternative B

Impacts from Recreation Direction: In this alternative, the approximately 3,600-acre Oneida Narrows area would be identified as an SRMA, increasing the total acreage of public lands managed as an SRMA to approximately 58,800. Developing resources within SRMAs would help concentrate recreational activities, thereby minimizing user conflicts and providing added protection to surrounding areas and resources from new disturbances.

Impacts on recreational opportunities from recreation management are similar to those identified in Alternative A and would impact the overall quality of recreational experiences on public lands. Maintaining OHV use impacts recreational opportunities by facilitating access to recreation areas inaccessible to ordinary street vehicles. Recreational users seeking solitude and a more natural setting may experience additional noise and air pollution created by OHVs. However, OHV restrictions in special designations limit disturbances for those recreational users seeking more primitive and natural experiences.

OHV management direction would affect OHV activities similar to those described in Alternative A. The Petticoat RNA would be an additional OHV closure, but there would be no net loss in OHV opportunities as the RNA is completely within the boundary of the Petticoat WSA, which does not provide motorized opportunities.

Alternative B would preserve existing OHV opportunities that occur on existing routes. Cross-country travel with motorized vehicles would be eliminated. Cross country travel with mechanized vehicles would be eliminated within SRMAs and WSAs. In the short term, until the comprehensive travel management plans are developed and implemented, all remaining public lands not designated as closed would restrict motorized travel to existing routes, except for snowmobiles. Snowmobiling would not be allowed on approximately 75,100 acres included in WSAs, RNAs, ACECs, Soda Springs Hills, or the Pocatello SRMA.

Within big game winter range (286,500 acres), snowmobiling would be limited to designated routes but would be allowed without restriction on the remaining approximate 252,500 acres.

Long-term impacts on OHV users and mountain bikers would come from converting approximately 413,500 acres of open, or undesignated, lands to a limited designation as a result

of the travel management planning process. This conversion would eliminate cross-country travel, which affects a wide range of public land users. It would also encourage the preservation and protection of wildlife, habitat, and sensitive soils and water resources.

Intensive uses such as rock crawling, motocross riding, or any other valid motorized activities may be managed by designating appropriate routes for these activities. Intensive use routes would not exceed a "footprint" larger than 80 acres.

Most OHV activity occurs in the Pocatello Off-Road SRMA. Developing travel management plans would provide a clear delineation of designated routes and trails, thereby discouraging proliferation of new routes and minimizing user conflicts. Approximately 413,500 acres of open and undesignated public lands would be converted to a limited designation. The BLM's ability to manage and eliminate the continual proliferation of OHV routes has proven difficult in the past and, would continue to be a challenge despite the area designation change.

Allowing snowmobiling without restriction on approximately 538,700 acres would affect users of public lands by providing them with additional areas for recreation. In Alternative B, areas where snowmobiling would be prohibited include WSAs, RNAs, ACECs, Pocatello SRMA, and the Soda Springs Hills Management area. This would provide additional protection for special designations, watersheds, and big game winter range areas. Restricting snowmobile use in the Pocatello SRMA would provide opportunities for those seeking non-motorized recreation activities such as cross-country skiing and snow shoeing.

Impacts from Special Status Species Direction: There are approximately 513,200 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat in the PFO area. In documented breeding and brood rearing habitats and winter habitats with seasonal restrictions (March 1 - June 30 and December 15 - March 1, respectively) additional terms and conditions may be required in SRPs, such as timing of activity or moving the activity to a different area, to avoid impacts to sage-grouse. Site specific assessments may allow activities to take place during the restricted periods pending further NEPA analysis as appropriate.

Impacts from Special Designations Direction: Management direction for special designations would be the same as in all other alternatives except that approximately 400 acres in the Petticoat Peak area would be identified as an RNA. Management direction would compliment current direction, which provides protection for the 400 acre area due to the fact that all the acreage is located within the existing WSA. However, if Congress were to remove the WSA status, protective measures would remain in place to protect the undisturbed and abundant diversity of mountain sagebrush, mountain mahogany, Douglas fir, sub-alpine fir, bigtooth maple, and aspen found in the area.

4.3.5.6 Alternative C

Impacts from Fish and Wildlife Direction: Management direction would be the same as in *Common to All Alternatives*, with the exception that snowmobiles would be limited to designated routes through big game winter ranges.

Impacts from Recreation Direction: In this alternative, the approximately 3,600-acre Oneida Narrows area, and the approximately 430 acres within the Goodenough Creek, Hawkins Reservoir, and Pipeline campgrounds would be identified as SRMAs, increasing the total acreage

of public lands managed as an SRMA to approximately 59,230. Developing resources within SRMAs would help concentrate recreational activities, thereby minimizing user conflicts and providing added protection to surrounding areas and resources from new disturbances.

In this alternative, opportunities for solitude and non-motorized recreation would be increased to the greatest degree of all alternatives. Motorized travel would be limited, creating a long-term effect on recreational users who desire these activities, or who require motorized travel to reach recreation areas that would otherwise be inaccessible. As in Alternatives B and D, approximately 413,500 acres of open and undesignated areas would be eliminated. Unlike in Alternative B or Alternative D, Alternative C would not provide the opportunity to designate a route for intensive motorized uses such as motocross or rock crawling in the travel management plans. Impacts on snowmobiling activities would be similar to those described in Alternative B. As in Alternative B, established management and recreation-related developments within the SRMAs would be emphasized, thereby reducing user conflicts and indirectly providing additional protection to resources in surrounding areas.

Impacts from Special Status Species Direction: Same as Alternative B.

Impacts from Special Designations Direction: Same as Alternative B.

4.3.5.7 Alternative D

Impacts from Recreation Direction: Oneida Narrows and Campgrounds would continue to be managed under the Pocatello ERMA.

This alternative would provide the most motorized public use of the action Alternatives B, C, and D. Fewer OHV restrictions would be implemented in this alternative, providing more opportunity for OHV use and other motorized and mechanized activities. Promoting the designation of additional existing OHV trails and providing minimal control on OHV use would have effects on other recreational users, as other recreationists' opportunities for solitude and quiet recreation would be minimized. OHV users would experience a long-term effect from expanding OHV opportunities. The travel management planning in this alternative would affect OHV users' experiences as a larger number of trails are designated and overall management restrictions are minimized.

Recreation has been the primary use within Oneida Narrows. In this alternative, Oneida Narrows would not be identified as an SRMA, which would reduce the recreation-based focus for management of this area. Conflicts between various recreationists could affect the quality of the recreation experience.

In Alternative D, issues identified with emerging recreation demands, user conflicts, and resource damage may not be adequately addressed. Similar to Alternatives B and C, all OHV areas currently open or not designated (approximately 413,500 acres) would be limited to designated routes. In the interim, until the travel management planning process is complete, limited areas would allow travel on existing routes. Similar to Alternative B, open areas could be designated through the travel management plans. In Alternative D, routes may be designated for legitimate, intensive OHV uses such as motocross or rock crawling activities in individual areas no larger than 320 acres, which would expand OHV opportunities and would have a long-term effect on OHV users.

Impacts on snowmobiling activities would be similar to those described in Alternative B, except that Alternative D would allow snowmobiling in the Pocatello SRMA, which would increase the acreage available for snowmobiling by approximately 33,400 acres. Snowmobiling would not be allowed in WSAs, RNAs, and ACECs. Snowmobiling would be allowed without restriction in the remainder of the planning area.

Impacts from Special Designations Direction: WSAs would continue to be managed under the BLM's IMP, which provides protective management based on using the non-impairment standard. WSAs and RNAs would be designated as closed to OHV use, which would protect the resources that afforded these areas special designation. Restrictions would be placed on motorized travel within the 250' corridor for all historic trails.

4.3.5.8 Cumulative Impacts

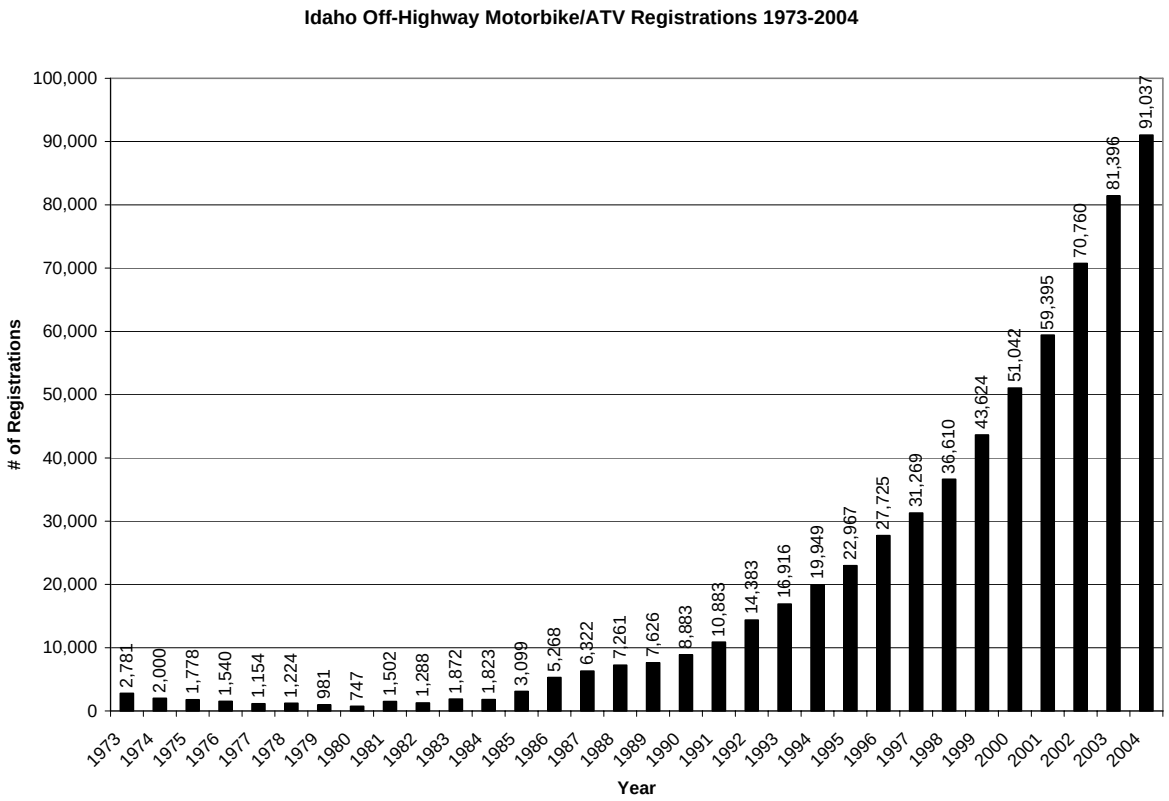
Cumulative impacts on recreation include past, present, and future management actions that may affect recreation associated with the planning area. The cumulative impacts discussion that follows considers the proposed alternatives in the context of the broader human environment, outside the scope described by the RMP, with the purpose of determining whether the proposed action would produce major adverse impacts with the planning area. For the purpose of this impact analysis, the gross land area within the management boundaries of the PFO, including all BLM, Forest Service, Tribal, State of Idaho, and private lands.

Past and Current Actions: Recreation opportunities in southeast Idaho are offered by a wide variety of providers, including private facilities and local, state, and federal governments. However, the majority of OHV opportunities are provided on public lands managed by the BLM and Forest Service. OHV management actions implemented by the BLM and Forest Service impact the majority OHV users in Idaho.

<u>Travel Management</u>
On February 8, 1972, President Richard Nixon signed Executive Order 11644, which established federal policy for use of OHVs on public lands. The purpose of this order was to establish policies and provide for procedures that would ensure the use of OHVs on public land would be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.

Idaho OHV registration data has been collected since 1973. The growth in number of OHV registrations has grown exponentially since that time (**Diagram 4.3.5-1**). The number of OHVs registered in Idaho has grown from 2,781 in 1973 to 81,114 in 2003. As a result, private landowners, local governments, and state and federal agencies have increasingly imposed restrictions on OHVs. Closures, seasonal restrictions, and general travel restrictions on OHVs in have been implemented for a variety of reasons including, but not limited to, protecting private property, wildlife habitat, erosive soils, and watersheds.

Diagram 4.3.5-1. Idaho OHV Registrations From 1973 Through 2003.



Over the past thirty years, travel management has evolved into a major issue on public lands, as well as private and all other non-federal lands. Managing public lands as open, or limited to existing road and trails has proven to be ineffective ways of managing motorized vehicles. Cross-country travel and route pioneering have conflicted with the management objectives for several resources. Management objectives for cultural resources, fish and wildlife, oils, special status species, vegetation, water, and recreation would be in conflict with designating lands as open for OHV use.

Open or undesignated areas would be eliminated in Alternatives B, C, and D. All public lands would be managed as closed or limited in order to provide recreational opportunities while also offering protection to multiple resources. Direct impacts on recreation users from management direction for these other resources would include designating certain areas as closed, implementing seasonal restrictions or seasonal closures, and restricting all travel in limited areas to designated routes. Travel management plans would be updated as needed, if management objectives were not being met as a result of travel management.

In the action Alternatives B, C, and D, there would be an approximately 413,500-acre reduction in open/undesignated areas compared to current management identified in Alternative A. There would be an increase in opportunities for recreationists who enjoy more natural environments, but a reduction in opportunities for OHV users who enjoy cross-country travel. Until the future

travel management plans are complete, which would formalize the route inventory process, motorized recreational opportunities would not exist in areas designated as closed.

Motorized activity in the remaining planning area would be limited to existing routes until route designations were completed. Approximately 601,100 acres would be available for OHV use in areas designated limited, which would provide 414,500-acre increases in limited acres over the 186,600 acres of lands with existing and designated trail designations in Alternative A. Overall, limiting OHVs to existing or designated routes would reduce conflicts between motorized and non-motorized users, affecting the overall experience for all users of public lands. Reducing open or undesignated OHV acreage is not expected to reduce, and could increase, tourism revenues and jobs within the planning area.

The Caribou National Forest has recently completed a revision of the Caribou National Forest Plan and followed up with a comprehensive travel management plan. Management direction in Alternative A would include approximately 413,500 acres that would be designated as open or undesignated, which would not be consistent with the Forest Service OHV management direction. Alternatives B, C, and D, would be consistent with the Forest Service OHV management direction, with both agencies eliminating most open and undesignated areas and managing the majority of public lands as limited.

Special Recreation Management Areas

The current Pocatello RMP recognizes recreation as the principal use of lands in two designated SRMAs: the Blackfoot River SRMA (approximately 21,800 acres) and the Pocatello SRMA (approximately 33,400 acres), which, together, comprise 9% of the planning area. The remaining 91% of the planning area comprises the Pocatello ERMA. These SRMAs were identified as a result of intensive recreational use that occurred in these areas. SRMA plans were not completed for these areas, and past direction has primarily managed for specific activities.

Other Resource Uses

Surface-disturbing activities primarily resulted from minerals and energy development, (Solid Leasable Minerals and Locatable Minerals), forestry activities, and lands and realty actions. These activities have detracted from certain types of recreational experiences on state, federal, and private lands through increased roads, industrial traffic, noise, and scenery degradation associated with industrial development. Short-term impacts would result from wildfire activity and various vegetation treatments. These activities create temporary area or road/trail closures and displace recreational users from developed or dispersed recreation areas.

Developments associated with ROWs, leases, and permits have resulted in a slight reduction in recreational opportunities on public lands. Examples of such developments have included communication sites, roads, power lines, and energy development.

Future Actions: Generally, all recreation could increase as the area's population increases. The population of Idaho has risen 28.5% in the last decade and is likely to continue to grow at a similar rate in the future. Demand for recreation opportunities could continue to increase at or near present rates, while total acreage of public lands is likely to stay flat or slightly decrease. Under lands and realty, Alternative D would provide the largest potential for a net decrease in public lands through land tenure adjustments. Private landowners are expected to provide fewer recreation opportunities on private lands as demand for housing and a commercial development

increases. This offers the potential for long-term reductions on recreation opportunities such as hunting, camping, fishing, mountain biking, and hiking.

Travel Management

Protective measures for private property, cultural resources, fish and wildlife, soils, special status species, and other forms of recreation would continue to further restrict travel management direction across all lands, regardless of ownership, as populations increase. User conflicts could increase over time, particularly between motorized and non-motorized users. Additional seasonal closures or use restrictions may be implemented following completion of the travel management plans.

Areas designated as open allow for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel. These types of areas would continue to decrease as the total number of users continues to increase. Sand dunes are one of the more likely settings to remain open, where all vehicle use would be allowed at all times. However, there are no such settings recognized within the planning area.

Travel management plans would identify specific routes where motorized and mechanized use is allowed. With use limited only to designated routes, maintenance, education, and law enforcement needs would increase with time.

Special Recreation Management Areas

There could be additional recreational pressure on public lands, resulting in a need to identify additional SRMAs. Personnel and recreation funding would be directed to SRMAs in order to fulfill commitments made to provide specific structured recreation opportunities. Management of SRMAs could move away from primarily managing for activities toward managing targeted outcomes, including specific activities, experiences, and benefit opportunities.

Other Resource Uses

Lands and realty direction may lead to land tenure adjustment, which would generally maintain or improve access to public lands. One of the general goals of lands and realty management direction would be to consolidate public land to retain and acquire land that is important to the public and the protection of resources and to dispose of parcels that are small, isolated and unmanageable**.** If public lands were disposed of, existing legal access would generally be retained. As lands are acquired, public lands would tend to be “blocked up”, and provide public areas that are generally more accessible than those small, isolated parcels that are often surrounded by private lands and have no legal access routes could provide. Impacts from the issuance of ROWs, leases, and permits would be similar to the current situation.

Wildfire and vegetation treatments would be short-term surface-disturbing activities, but could improve forest, riparian, wetland, and non-forested vegetation conditions, aesthetics and wildlife habitat, resulting in long-term recreational impacts. Impacts on recreation resources would also be caused by activity and location restrictions to protect fish, wildlife and water quality, which could limit the areas in which recreation opportunities are allowed to expand. Short-term impacts may be imposed through seasonal closures, but long-term impacts would result when closures changed the type of recreation opportunities available to the public. Development and restrictions could reduce recreational opportunities for some users by limiting certain types of

recreational activities; however, the same restrictions, such as road closures, could also enhance the experience of other recreationists seeking non-motorized opportunities in a natural setting.

Unknown
Over the planning period, it is expected that new/unforeseen forms of recreation, that are not in existence today, may evolve into major recreation issues during the planning period. Mountain biking and ATV use are examples of activities that evolved into major recreation activities over the life of the existing Pocatello RMP. Impacts are unknown; however comprehensive travel management direction could apply to most new activities.

4.2.5.9 Tribal Treaty Rights and Interests

Recreation management actions such as designating SRMAs and travel designations, that is, open limited and closed, as identified in the action alternatives, would have minor effects on tribal treaty rights and interests. Designation of SRMAs along with enhanced management would emphasize the importance of recreation experiences (e.g., primitive), while not interfering with tribal traditional cultural uses on unoccupied public lands. Travel designations would restrict OHVs to existing roads and trails until detailed travel management plans could be implemented following completion of the RMP planning process. This would reduce impacts on vegetation, special status species, fish and wildlife, and water, which are important resources, and would enable tribal members to exercise tribal treaty rights of hunting, fishing, and gathering. Travel designations may impact the access of some tribal members to unoccupied public lands where these tribal treaty rights have been exercised in the past.

4.4 SPECIAL DESIGNATIONS

4.4.1 ADMINISTRATIVE DESIGNATIONS

4.4.1.1 Summary

The overall effects of management direction on the values, characteristics, and purposes of special designations in all the alternatives would be primarily short term. **Table 4.4.1-1** provides a comparison by alternative of total approximate acreage amounts by special designation areas.

Table 4.4.1-2 provides a summary of the general protections offered to WSAs, ACECs and RNAs in all alternatives. Alternative C would provide the most enhancements to the values/characteristics of special designations, as management actions from the other resources and uses recognize the uniqueness of these areas (plant communities, geologic formations, cultural resources, and winter range habitats). Subsequently management actions would be

Table 4.4.1-1. Comparison of the Number and Approximate Acres of Special Designations by Alternative

Special Designation Areas	Alternative			
	A	B	C	D
WSAs	2	2	2	2
WSA Acres	11,200	11,200	11,200	11,200
ACECs	7	7	7	7
ACEC Acres	9,900	9,900	9,900	9,900

Table 4.4.1-1. Comparison of the Number and Approximate Acres of Special Designations by Alternative

Special Designation Areas	Alternative			
	A	**B**	**C**	**D**
RNAs	7	8	8	7
RNA Acres	1,500	1,900	1,900	1,500
Watchable Wildlife Sites	5	5	5	5
Suitable Wild and Scenic River Miles	0.0	0.0	0.0	0.0
National Historic Trails (Acres[1])	1,100	1,100	1,100	1,100
Special Designated Area Acres "**Open**" or Undesignated to OHV	6	0.0	0.0	0.0
Special Designated Area Acres "**Limited**" to OHV (Snowmobiling Not Allowed)	16,000	9,900	9,900	9,900
Special Designated Area Acres "**Limited**" to OHV (Snowmobiling Allowed)	5,100	0	0	0
Special Designated Area Acres "Closed" to OHV	1,500	12,700	12,700	12,700

[1] Acre figure for historic trails based upon a 250' buffer.

Table 4.4.1-2. Approximate Acres of Identified Values/Characteristics by Alternative for WSAs, ACECs and RNAs

Special Designation	Alternative											
	A			**B**			**C**			**D**		
	Values/Characteristics											
	I [1]	**M [2]**	**E [3]**	**I [1]**	**M [2]**	**E [3]**	**I [1]**	**M [2]**	**E [3]**	**I [1]**	**M [2]**	**E [3]**
WSAs	0.0	0.0	11,200	0.0	0.0	11,200	0.0	0.0	11,200	0.0	0.0	11,200
ACECs	6[4]	9,900	0.0	0.0	9,900	6	0.0	9,900	6	0.0	9,900	6
RNAs	800	700	0.0	1,200	700	0.0	0.0	700	1,200	800	700	0.0

[1]**I**mpaired - The values and characteristics for which the area was designated would potentially be affected by management direction and authorized activities.
[2]**M**aintained - The values and characteristics for which the area was designated would generally be maintained by management direction and authorized activities.
[3]**E**nhanced - The values and characteristics for which the area was designated would generally be enhanced through changes in management direction and authorized activities.
[4] Juniper ACEC (3 acres) and VanKomen ACEC (3 acres) were not designated for OHV use in Alternative A. OHV designation would be "limited" in Alternatives B, C, and D.

implemented to provide enhanced protection to these areas. Alternative B would generally maintain the values/characteristics for special designations, as management actions would be implemented to balance resources and uses within these unique areas while managing them

accordingly. Alternatives A and D would potentially result in the impairment or decline of some of the values/characteristics for several of the special designation areas.

Special designation areas would receive the most protection in Alternative C, which emphasizes non-motorized recreation and identifies all RNAs as unavailable for livestock grazing, thereby improving more primitive and serene backcountry characteristics. Alternatives B and C propose a new Petticoat Peak RNA consisting of approximately 400 acres. Existing RNAs and ACECs would continue to be managed in all alternatives. Alternative D would provide the least protection to special designations, as it emphasizes resource and economic development and provides limited resource protection.

4.4.1.2 Methods of Analysis

Indicators. The following indicators were used to determine possible impacts on special designations:

- An activity or development impairing the suitability of WSAs for preservation as wilderness.
- A level, or the development, of an activity that has already occurred and is incompatible with the objectives or management prescriptions of the Special Area Designation, or if that activity impaired the values for which the area was designated.

Assumptions. The analysis is based on the following assumptions:

- Management prescribed for existing or potential ACECs and RNAs would protect the unique values and characteristics identified during the initial evaluation process.
- For historic trails, acreages were calculated based on the length of each respective trail on public lands, including a 250-foot buffer.
- WSAs would continue to be managed under the BLM's IMP for Lands under Wilderness Review (H-8550-1) until such time as Congress either designates all or portions of the WSAs as wilderness or releases the WSAs, or portions of the WSAs, from any further consideration for wilderness.
- The following six practical effects of the IMP for Lands Under Wilderness Review would be followed:
    1. The general standard for interim management is that lands under wilderness review must be managed so as not to impair their suitability for preservation as wilderness. This is referred to as the "non-impairment" standard and applies to all uses and activities, except those specifically exempted from this standard by FLPMA (such as grandfathered uses).
    2. Permitted activities in WSAs (except grandfathered and valid existing rights) are temporary uses that create no new surface disturbance and do not involve permanent placement of structures.
    3. Those grazing, mining, and Mineral Leasing uses that existed on October 21, 1976, (the date FLPMA was approved) may continue in the same manner and degree as on that date, even if this would impair wilderness suitability.

4. Lands under wilderness review may not be closed to appropriation under the mining laws in order to preserve their wilderness character.
5. Valid existing rights must be recognized.
6. All lands must be managed to prevent unnecessary or undue degradation.

In all alternatives, Special Designations direction would not be affected by Air Quality, Cultural Resources, Soils, Paleontological Resources, Water Resources, and Forestry so these resources are not further addressed under this section.

4.4.1.3 Impacts Common to All Alternatives

Impacts from Fish and Wildlife Direction: Fish and Wildlife management, which enhances biological and environmental characteristics, would increase the vegetation needed by wildlife and would improve the quality of special designation areas, including the wilderness characteristics of WSAs. There are no management actions that are incompatible with the objectives or management prescriptions for special designations. Therefore, the values or characteristics for which these areas were designated would not be impaired.

Impacts from Special Status Species Direction: Management actions that protect special status species would expand the protection of special designation resources. Restricting intrusive human disturbances, such as motorized access around special status plant habitat, would reduce the likelihood of spreading invasive species/noxious weeds by reducing surface disturbances. The restrictions would also improve overall vegetation cover and wildlife habitat, creating long-term indirect impacts on the values and/or characteristics for which these areas were designated. Conservation strategies would promote healthy and natural functioning ecosystems in these areas.

Impacts from Vegetation Direction: Implementing fire and nonfire vegetation treatments to maintain or improve vegetation condition and reduce the invasion of weeds beyond current levels would increase the integrity and condition of important wildlife and plant habitat that may occur within special designations. If LHC-A is achieved, or progress made towards achieving LHC-A, unique values or characteristics of the areas would be maintained or enhanced. Vegetation direction is consistent with the intent to provide various protective measures for all special designations.

Impacts from Visual Resources Direction: In all alternatives, management direction for visual resources would provide varying levels of protection for scenic quality based on the VRM class for each given special designation. Petticoat Peak WSA and Worm Creek WSA are classified as approximately 11,200 acres of VRM Class I, providing the highest level of scenic protection, which should provide indirect impacts in maintaining the non-impairment standard. RNAs, ACECs, and watchable wildlife areas contain a mix of VRM classes II, III, and IV. Regardless of which class the special designation is in, Visual Resources direction should provide indirect impacts on the special designation by providing direction to minimize disturbance to scenic qualities and repeat the basic elements of the landscape.

Impacts from Wildland Fire Management Direction: Within WSAs, fuels and vegetation treatments and wildland fire management activities would follow H-8550-1 (Interim Policy for Lands under Wilderness Review). The use of heavy equipment would be kept to a minimum and

prior approval of the authorized officer would be required. Removal of vegetation through WFU, prescribed fire, mechanical and hand treatments could create short-term effects on special designations depending on their location; but treatments would require NEPA analysis to ensure the safety of resource values being protected. There would be no prescribed management action that would impair the values found in WSAs, however there would be potential for wildland fire to drastically change the character of the landscape within the WSAs. Suppression activities would have an indirect impact on the vegetative communities and potentially the long-term sustainability of the unique values and characteristics.

Impacts from Lands and Realty Direction: Although acreage identified for disposal would vary by alternative, special designations are rarely disposed of regardless of classification. Alternative D would identify the largest area of acreage available for disposal (Zone 4), 2% of which occurs within special designations. However, in all alternatives, established criteria must be followed; and the likelihood of public land disposals occurring in special area designations would be minimal.

Impacts from Livestock Grazing Direction: In general, the implementation of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would reduce the effects of livestock grazing on special designation areas. Management direction would not impair the unique values/characteristics for which special designations were identified.

Impacts from Minerals and Energy Direction: In all alternatives, impacts on WSAs, RNAs, ACECs, and historic trails would by minimized by implementing discretionary and non-discretionary closures and NSO stipulations for Fluid Minerals leases. In addition to RMP restrictions, BLM would consider these special areas and resource values in formulating appropriate restrictions and mitigation measures during the site specific environmental analysis that is required for any minerals and energy exploration and development proposals.

Impacts from the RFDS of Fluid Minerals Management Direction: The RFDS estimates that approximately 185 acres of disturbance from oil and gas leasing in the Bear Lake Plateau area could occur. Pine Gap RNA (approximately 240 acres) and Dairy Hollow RNA (approximately 40 acres) are located in this general area of High potential for oil and gas development. Indirectly, the unique values and characteristics of the Pine Gap and Dairy Hollow RNAs (approximately 280 acres) could be impaired due to infrastructure constructed to allow for development. The RFDS also estimates approximately 129 acres of disturbance from geothermal leasing situated throughout the planning area and would not directly affect any of the existing (or proposed) special designations.

If leases were issued in RNAs or ACECs, an NSO stipulation would be implemented, protecting the surface from disturbance and development. Indirectly, the unique values and characteristics of the Pine Gap and Dairy Hollow RNAs (approximately 280 acres) could be impaired due to infrastructure constructed to allow for development.

Impacts from Recreation Direction: For all alternatives, recreation management for the Petticoat Peak WSA and the Worm Creek WSA would comply with BLM's IMP for Lands under Wilderness Review (H-8550-1). Only uses and/or facilities that are found to be non-impairing would be allowed within WSAs.

Special designations would be affected by Recreation direction with the elimination of areas that are designated "Open" and undesignated for OHV use. WSAs and RNAs would have additional protection by having a "Closed" designation for OHV use. ACECs would also have additional protection by not allowing snowmobile use and by limiting all other motorized and mechanized travel to designated routes.

SRPs may be issued for only those activities that would be consistent with the management objectives of special designations. SRPs would include terms and conditions to specifically address what would and would not be authorized under the permit. For example, an SRP may be issued for commercial hunting within a WSA, however OHV use and camping within the WSA would not be allowed.

Impacts from Special Designations Direction: Because no rivers in the planning area are currently managed under the Wild and Scenic Rivers Act of 1968 and because the evaluation completed for the planning area found two rivers that were eligible but not suitable for inclusion in the NWSRS, no wild and scenic rivers on public lands would be designated in the planning area.

In all alternatives, Petticoat Peak WSA (approximately 11,200 acres) and Worm Creek WSA (approximately 40 acres) would be managed in accordance with the BLM's IMP for Lands under Wilderness Review (H-8550-1). IMP allows for very little flexibility for management decisions; therefore, impacts would not vary among Alternatives A, B, C, and D. Impacts would include the following:

- Forest and vegetal products would not be permitted for removal.
- Livestock grazing management changes would need to ensure that wilderness values are not impaired.
- No new oil and gas leases would be issued.
- Fuels and vegetative treatments would conform to the policy guidance of Chapter II of the BLM's IMP for Lands under Wilderness Review. Vegetative manipulation may only be used for controlling small areas of noxious or invasive plants when there is no effective alternative.
- Approximately 11,200 acres would be closed to Locatable Minerals, Mineral Materials, and Solid Leasable Minerals.

4.4.1.4 Alternative A

Impacts from Livestock Grazing Direction: In this alternative approximately 9,700 acres of ACECs and 1,100 acres of RNAs would be available for livestock grazing. Impacts from livestock (e.g., vegetation removal through grazing and the trampling of soil and vegetation, decrease native plant diversity, alter species composition, and increase weed infestations) on unique plant communities, big game winter range, and watershed health would be reduced through implementation of the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a). Impacts from livestock use in RNAs could result in the permanent loss of values for which the RNAs were designated.

Table 4.4.1-3 identifies acres that would be available/not available by alternative for livestock grazing within special designations (WSA, RNA, and ACEC) in the planning area.

Table 4.4.1-3. Approximate Acres Available/Not Available by Alternative for Livestock Grazing Within Special Designated Areas (WSA, RNA, and ACEC) in the Planning Area

Special Designation	Alternative							
	A		B		C		D	
	Available	Not Available	Available	Not Available	Available	Not Available	Available	Not Available
WSA	11,200	40	11,200	40	11,200	40	11,200	40
RNA	800	700	1,200	700	0.0	1,900	800	700
ACEC	9,700	200	9,700	200	9,700	200	9,700	200

Impacts from Minerals and Energy Direction: The values and unique characteristics for which specific areas (e.g., ACECs, RNAs, WSAs, and historical trails) were designated would be maintained and protected through discretionary and non-discretionary closures and an NSO stipulation (for Fluid Mineral Leasing) as shown in **Table 4.4.1-4** for minerals and energy resources.

Table 4.4.1-4. Approximate Acres of Special Designation Areas (WSA, ACEC, RNA, and Historic Trails) Protected Through Discretionary and Non-discretionary Closures and NSO Stipulation for Minerals and Energy Resources for Alternative A

Special Designation (Acres)	Mineral Resource							
	Fluid Minerals		Solid Leasable Minerals		Mineral Materials		Locatable Minerals	
	Non[1]	NSO[2]	Non	Dis[3]	Non	Dis	Non	Dis
*WSAs (11,200)	11,200	0.0	11,200	0.0	11,200	0.0	0.0	0.0
ACECs (9,900)	0.0	9,900	0.0	9,900	0.0	0.0	1,900	0.0
RNAs (1,500)	0.0	1,500	0.0	1,500	0.0	1,500	0.0	1,500
Historic Trails (1,100)	0.0	1,100	0.0	0.0	0.0	1,100	0.0	0.0

[1] Non-discretionary closure [2] No surface Occupancy [3] Discretionary closure

Impacts from Recreation Direction: In Alternative A, the Petticoat Peak WSA would have the OHV designation of "Limited", with all motorized travel limited to designated routes. However, there would be no routes designated within the WSA, so OHVs would not be allowed within the WSA. The only authorized access routes near the WSA would be the North Canyon road, Mill Creek road, and Rindlishbaker Canyon road. The North Canyon and Rindlishbaker roads were excluded from the WSA rather than identified as designated routes within the WSA. The Mill Creek would be open until just before the WSA boundary. No portion of the Mill Creek road would be open within the WSA. This direction would not impair the values of the WSA.

Under current management, the Travertine Park ACEC and all RNAs are closed to OHV use, providing the most protection from motorized activities. Indian Rocks ACEC, Stump Creek ACEC, and Downey Watershed ACEC limit motorized travel to designated routes. The limited designation provides some protection, but unauthorized use and illegal proliferation of routes could continue to cause impacts. Bowen Canyon Eagle Sanctuary ACEC, Old Juniper Townsite ACEC and Van Komen Homestead ACEC do not have OHV designations (and are therefore basically managed as "Open"). An "Open" designation allows for cross-country travel, which

would damage or kill vegetation, increasing the likelihood of soil erosion and canopy and ground cover would be reduced. This in turn would lead to the deterioration of the unique values and characteristics for which the areas were designated.

Snowmobiling would be allowed in the majority of the planning area. They would be restricted from the Downey Watershed ACEC, Stump Creek ACEC, Bowen Canyon Eagle Sanctuary ACEC, and Robbers Roost RNA; these areas total approximately 7,100 acres. Restricting snowmobiles from these areas would ensure that values are protected. Limiting access in the Downey Watershed would reduce the likelihood of effects from runoff into the watershed and water sources and would further protect vegetation. Noise disturbances are limited in the Bowen Canyon Eagle Sanctuary ACEC, which would improve the quality of roosting habitat available to the bald eagle. Disturbances to elk and other wildlife in the Stump Creek Ridge ACEC would be reduced, which is one of the most important elk winter ranges in the planning area. Disturbances would be reduced in the Robbers Roost RNA, providing protection to vegetation resources in the area.

Impacts from Special Designations Direction: In this alternative, seven ACECs (approximately 9,900 acres) and seven RNAs (approximately 1,500 acres) would continue to be managed for the values for which they were established. No new ACECs or RNAs would be designated in Alternative A. Impacts on existing designations would occur from projects or actions proposed within their boundaries. Management would be applied to protect the relevant and important values when activities are proposed.

4.4.1.5 Alternative B

Impacts from Lands and Realty Direction: Lands and Realty direction would directly and indirectly impact special designations by pursuing Locatable Minerals withdrawals and classifying approximately 1,900 acres of RNAs as “Exclusion” areas for LUAs. Management direction would provide for indirect impacts on approximately 22,200 acres of WSAs (approximately 11,200 acres), ACECs (approximately 9,900 acres), and NHTs (approximately 1,100 acres) by classifying these as “Avoidance” areas. These areas would generally be avoided but may be available with special stipulations. Efforts would be made to work with the applicant to reroute proposals. Special stipulations would be required to protect resource values. Special stipulations would consist of applying BMPs, management techniques or guidelines, and/or would be developed on a case-by case-basis through the NEPA process to protect important resources (e.g., special status species habitat, big game winter range, and cultural resources).

Impacts from Livestock Grazing Direction: In this alternative, ACECs would include approximately 9,700 acres available for livestock grazing, and approximately 200 acres would be unavailable for livestock grazing. RNAs would include approximately 1,100 acres available for livestock grazing, and approximately 700 acres unavailable for grazing. In general, the implementation of the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would reduce the effects of livestock grazing on special designation areas. If the BLM determines that livestock grazing is impacting values for which the RNAs were designated, livestock grazing would be adjusted so values would not continue to be compromised. Within RNAs unavailable to livestock grazing, vegetation communities’ over time could see an increase in biodiversity of native plant species, an increase

in desirable species composition, and a decrease in invasive species/noxious weeds that would contribute to maintaining the values and characteristics for which the RNAs were designated.

Table 4.4.1-3 identifies acres available/not available by alternative for livestock grazing within special designations (WSA, RNA, and ACEC) within the planning area.

Impacts from Minerals and Energy Direction: The values and unique characteristics for which specific areas (e.g., ACECs, RNAs, WSAs, and historical trails) were designated would be maintained and protected through discretionary and non-discretionary closures and an NSO stipulation as shown in **Table 4.4.1-5** for mineral resources.

Table 4.4.1-5. Approximate Acres of Special Designated Areas (WSA, ACEC, RNA, and Historic Trails) Protected Through Discretionary and Non-discretionary Closures and NSO Stipulation for Minerals and Energy Resources for Alternative B

Special Designation (Acres)	Mineral Resource							
	Fluid Minerals		Solid Leasable Minerals		Mineral Materials		Locatable Minerals	
	Non[1]	NSO[2]	Non	Dis[3]	Non	Dis	Non	Dis
WSAs (11,200)	11,200	-	11,200	-	11,200	-	-	-
ACECs (9,900)	-	9,900	-	-	-	-	1,900	2,300
RNAs (1,900)	-	1,500	1,500	-	-	1,500	-	1,900
Historic Trails (1,100)	-	1,100	-	-	-	-	-	

[1] Non-discretionary closure [2] No surface Occupancy [3] Discretionary closure

The Petticoat Peak RNA (approximately 400 acres) is located within the Petticoat Peak WSA (approximately 11,200 acres), which has a non-discretionary closure for Fluid Minerals, Solid Leasable Minerals, and Mineral Materials.

Impacts from Recreation Direction: In this alternative, approximately 1,900 acres within the RNAs would be designated as “Closed”; and all of the approximately 9,900 acres within the seven ACECs would be designated as “Limited”, which would limit all travel to designated routes, with the exception that snowmobile use would not be allowed. This direction would protect and maintain the unique values for which these Special designations were established.

SRPs may be issued for only those activities that would be consistent with the management objectives for special designations. SRPs would include terms and conditions to specifically address what would and would not be authorized under the permit. For example, an SRP may be issued for commercial hunting within a WSA or RNA, however OHV use or other surface-disturbing activities would not be allowed.

Impacts from Special Designations Direction: In this alternative, seven ACECs (approximately 9,900 acres) and seven RNAs (approximately 1,500 acres) would continue to be managed for the unique values and characteristics for which these special designations were established. Management actions would be applied to protect the relevant and important values when activities are proposed.

This alternative would also designate the Petticoat Peak RNA (approximately 400 acres) to protect the undisturbed and abundant diversity of mountain sagebrush, mountain mahogany, Douglas fir, sub-alpine fir, bigtooth maple, and aspen. This RNA would be located entirely

within the boundary of the Petticoat Peak WSA, and management of the RNA would be consistent with the Petticoat Peak WSA. In the future, should Congress act on Idaho BLM WSA recommendations and release Petticoat Peak from WSA status, the RNA would protect and maintain the unique values and characteristics of these plant communities.

4.4.1.6 Alternative C

Impacts from Lands and Realty Direction: Lands and Realty direction provides direct and indirect impacts on special designations by pursuing withdrawals and classifying approximately 1,900 acres of RNAs as "Exclusion" areas for LUAs. Management direction would provide for indirect impacts on approximately 22,200 acres of WSAs (approximately 11,200 acres), ACECs (approximately 9,900 acres), and NHTs (approximately 1,100 acres) by classifying these areas as "Avoidance" areas. These are areas would generally be avoided but may be available with special stipulations. Efforts would be made to work with the applicant to reroute proposals. Special stipulations would be required to protect resource values. Special stipulations would consist of applying BMPs, management techniques or guidelines, and/or would be developed on a case-by-case basis through the NEPA process.

Impacts from Livestock Grazing Direction: In this alternative, ACECs would include approximately 9,700 acres available for livestock grazing, and approximately 200 acres would be unavailable for livestock grazing. All of the approximately 1,900 acres in RNAs would be unavailable for livestock grazing, providing the most extensive protection of all of the alternatives. In general the Implementation of the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**) (BLM 1997a) would reduce the effects of livestock grazing on special designation areas. Livestock grazing of RNAs could decrease biodiversity of native plant species, alter the species composition, and increase weeds. This type of use would contribute to the permanent loss of the values for which the RNAs were designated.

Table 4.4.1-3 identifies acres that would be available/not available by alternative for livestock grazing within special designations (WSA, RNA, and ACEC) within the planning area.

Impacts from Minerals and Energy Direction: The values and unique characteristics for which specific areas (e.g., ACECs, RNAs, WSAs, and historical trails) were designated would be maintained and protected through discretionary and non-discretionary closures and an NSO stipulation as shown in **Table 4.4.1-6** for minerals and energy resources.

Table 4.4.1-6. Approximate Acres of Special Designated Areas (WSA, ACEC, RNA, and Historic Trails) Protected Through Discretionary and Non-discretionary Closures and NSO Stipulation for Mineral and Energy Resources for Alternative C

Special Designation (Acres)	Mineral Resource							
	Fluid Minerals		Solid Leasable Minerals		Mineral Materials		Locatable Minerals	
	Non[1]	NSO[2]	Non	Dis[3]	Non	Dis	Non	Dis
WSAs (11,200)	11,200	-	11,200	-	11,200	-	-	-
ACECs (9,900)	-	9,900	-	-	-	1,900	1,900	2,300
RNAs (1,900)	-	1,500	-	1,500	-	1,500	-	1,900
Historic Trails (1,100)	-	1,100	-	-	-	-	-	-

[1] Non-discretionary closure [2] No surface Occupancy [3] Discretionary closure

There would be a 1,900 acre non-discretionary closure for the Downey Watershed withdrawal, which encompasses the same "footprint" as the Downey ACEC. Mineral entry withdrawals, consisting of approximately 1,900 acres within the eight RNAs, would be finalized.

The Petticoat Peak RNA (approximately 400 acres) encompasses the same "footprint" as the Petticoat Peak WSA (approximately 11,200 acres), which has a non-discretionary closure for Fluid Minerals, solid leasable minerals, and Mineral Materials.

Impacts from Recreation Direction: In this alternative, approximately 1,900 acres within the eight RNAs would be designated as "Closed"; and all of the approximately 9,900 acres in the seven ACECs would be designated as "Limited," which would limit all travel to designated routes, with the exception that snowmobile use would not be allowed. This direction would protect and maintain the unique values and characteristics for which these special designations were established.

SRPs may be issued for only those activities that would be consistent with the management objectives for special designations. SRPs would include terms and conditions to specifically address what would and would not be authorized under the permit. For example, an SRP may be issued for commercial hunting within a WSA or RNA, however OHV use or other surface-disturbing activities would not be allowed.

Impacts from Special Designations Direction: In this alternative, seven ACECs (approximately 9,900 acres) and seven RNAs (approximately 1,500 acres) would continue to be managed for the values for which they were established. Management would be applied to protect the relevant and important values when activities are proposed.

This alternative includes a proposal to identify a new, 400 acre Petticoat Peak RNA, which would provide direction to protect the undisturbed and abundant diversity of mountain sagebrush, mountain mahogany, Douglas-fir, sub-alpine fir, bigtooth maple, and aspen. Protective measures would be consistent with current management direction, due to the fact that the RNA would be located within the boundaries of the existing Petticoat Peak WSA. However, if Congress were to remove the WSA status, the RNA status would continue to provide protective measures.

4.4.1.7 Alternative D

Impacts from Lands and Realty Direction: Lands and Realty direction would provide direct and indirect impacts on special designations on approximately 22,200 acres of WSAs (approximately 11,200 acres), ACECs (approximately 9,900 acres), and NHTs (approximately 1,100 acres) by classifying these as "Avoidance" areas. These areas would generally be avoided but may be available with special stipulations. Efforts would be made to work with the applicant to reroute proposals. Special stipulations would be required to protect resource values. Special stipulations would consist of applying BMPs, management techniques or guidelines, and/or would be developed on a case by case basis through the NEPA process.

Impacts from Livestock Grazing Direction: In this alternative, ACECs would include approximately 9,700 acres available for livestock grazing, and approximately 200 acres would be unavailable for livestock grazing. RNAs would include approximately 800 acres available for

livestock grazing, and approximately 700 acres unavailable for grazing. Direct and indirect impacts from livestock grazing should be minimized through implementation of *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1997a), which should improve vegetative cover, including those lands within special designations.

Table 4.4.1-3 identifies acres that would be available/not available by alternative for livestock grazing within special designations (WSA, RNA, and ACEC) in the planning area.

Impacts from Minerals and Energy Direction: The values and unique characteristics for which specific areas (e.g., ACECs, RNAs, WSAs, and historical trails) were designated would be maintained and protected through discretionary and non-discretionary closures and an NSO stipulation, as shown in **Table 4.4.1-7**, for Fluid Minerals, Solid Leasable Minerals, Mineral Materials and Locatable Minerals.

Table 4.4.1-7. Approximate Acres of Special Designated Areas (WSA, ACEC, RNA, and Historic Trails) Protected Through Discretionary and Non-discretionary Closures and NSO Stipulation for Mineral and Energy Resources for Alternative D

Special Designation (Acres)	Mineral Resource							
	Fluid Minerals		Solid Leasable Minerals		Mineral Materials		Locatable Minerals	
	Non[1]	NSO[2]	Non	Dis[3]	Non	Dis	Non	Dis
WSAs (11,200)	11,200	-	11,200	-	11,200	-	-	-
ACECs (9,900)	-	9,900	-	-	-	-	1,900	-
RNAs (1,500)	-	1,500	-	1,500	-	1,500	-	1,500
Historic Trails (1,100)	-	1,100	-	-	-	-	-	-

[1] Non-discretionary closure [2] No surface Occupancy [3] Discretionary closure

There would be a 1,900-acre, non-discretionary closure for the Downey Watershed withdrawal, which encompasses the same "footprint" as the Downey ACEC. Mineral entry withdrawals consisting of approximately 1,500 acres within the seven RNAs would be finalized.

Impacts from Recreation Direction: In this alternative, approximately 1,500 acres in the seven RNAs would be designated as "Closed" to OHVs. Approximately 9,900 acres within the seven ACECs would be designated as "Limited," which would limit all travel to designated routes, with the exception that snowmobile use would not be allowed. This direction would protect and maintain the unique values and characteristics for which these special designation areas were established.

SRPs may be issued for only those activities that would be consistent with the management objectives for special designations. SRPs would include terms and conditions to specifically address what would and would not be authorized under the permit. For example, an SRP may be issued for commercial hunting within a WSA or RNA, however OHV use or other surface-disturbing activities would not be allowed.

Impacts from Special Designations Direction: In this alternative, seven ACECs (approximately 9,900 acres) and seven RNAs (approximately 1,500 acres) would continue to be managed for the values for which they were established. No new ACECs or RNAs would be designated in Alternative D. Impacts on existing designations would occur from projects or

actions proposed within their boundaries. Management would be applied to protect the relevant and important values when activities are proposed.

4.4.1.8 Cumulative Impacts

The cumulative impacts analysis boundary for special designations includes the entire planning area, regardless of land ownership. Activities and resources occurring outside the PFO boundary are not expected to affect special designations within the PFO boundary. The largest area within the planning area containing other federal surface ownership is the Caribou National Forest, most of which is in the eastern portion of the PFO. More than one million acres within the planning area are National Forest System lands administered by the Caribou National Forest.

Past and Current Actions:

Watchable Wildlife Areas
Watchable Wildlife areas have been identified to direct visitors to some of the best wildlife-viewing opportunities in Idaho. The Idaho Wildlife Viewing Guide identifies 14 wildlife-viewing areas (regardless of land ownership) within the planning area.

Historic Trails
The Oregon and California Trails have multiple routes passing through the planning area, including segments that cross private, State of Idaho, Forest Service, and other public lands. The trails did not follow a single route, rather numerous branches and cutoffs were used by emigrants heading west. In 1978 Congress authorized the Oregon NHT; and, in 1992, it authorized the California NHT to commemorate these significant routes of travel and to promote their preservation, interpretation, public use, and appreciation. No one entity can provide adequate protection for these extensive resources. The preservation of these historic trails depends on information sharing and mutual assistance among trails partners in both the public and private sectors.

All parties have been provided guidance for protective measures in the Comprehensive Management and Use Plan EIS for the California NHT/Pony Express NHT and the Management and Use Plan Update EIS for the Oregon NHT/Mormon Pioneer NHT. Elements of this plan were developed in cooperation with federal, state, and local agencies, as well as non-profit trails organizations.

ACECs and RNAs
ACECs and RNAs are areas of public land where the BLM has determined that "special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards." This definition, from the FLPMA, is unique to the BLM. No other federal agency designates ACECs. The BLM would continue to manage 7 ACECs (approximately 9,900 acres) and seven RNAs (approximately 1,500 acres).

WSAs
The BLM and Forest Service have both identified areas to preserve potential wilderness and primitive values. The BLM underwent an intensive wilderness inventory during the early 1980s. Petticoat Peak (approximately 11,200 acres) and Worm Creek (approximately 40 acres) were the

only two WSAs identified within the planning area. Petticoat Peak was identified as a WSA, but was recommended as non-suitable for wilderness designation. Worm Creek was identified as a WSA and recommended as suitable for wilderness designation. The WSA was dependent on designation of the adjacent Forest Service Worm Creek Roadless Area, which was not recommended as suitable for wilderness designation in the latest Forest Plan Revision.

The Forest Service has identified Roadless Areas and recommended Wilderness areas in the 2003 Caribou National Forest Revised Forest Plan. Approximately 47,200 acres were recommended for Wilderness in the Mt. Naomi and Caribou City Roadless Areas. Summer motorized travel would be allowed in these areas on existing, designated routes. Winter motorized travel would be allowed. The portion of the Worm Creek Roadless Area recommended for Wilderness in 1985 was not recommended and would be managed as a semi-primitive motorized area.

Future Actions:

Watchable Wildlife Areas

Watchable wildlife areas would continue to be recognized and included in the Idaho Wildlife Viewing Guide. Use of the designated watchable wildlife areas could result in impacts on landowners and residents in proximity to these areas due, in particular, to increased traffic and general visitor use in fairly remote areas. Future management of the watchable wildlife areas would not likely change in the future.

Historic Trails

Future management of historic trails would follow the guidelines outlined in the Comprehensive Management and use Plan EIS for the California NHT/Pony Express NHT and the Management and Use Plan Update EIS for the Oregon NHT/Mormon Pioneer NHT. Any future development on public lands would require detailed environmental analyses to be carried out as required by state and local regulations and the provisions of NEPA and section 106 of the NHPA.

ACECs and RNAs

Future management would continue to provide for protection of unique values and characteristics found within RNAs and ACECs. Impacts from activities implemented on adjacent public lands or adjacent land not managed by BLM could create additional cumulative impacts on relevant and important values and characteristics indirectly. Such impacts could include spread of invasive species/noxious weeds, vegetation loss from wildland fire or livestock grazing, and vegetation or soil damage resulting from dispersed recreation activities.

Alternatives B and C would propose to designate the Petticoat Peak RNA (approximately 400 acres) which would occur within boundary of the Petticoat Peak WSA. This RNA designation would provide protective measures to maintain the unique values and characteristics of plant communities within this RNA should Congress act on Idaho BLM WSA recommendations in the future and release the Petticoat Peak WSA from its current WSA status.

WSAs

As recreation use continues to increase, use patterns would change with changes in population and technology. Demands for primitive and semi-primitive opportunities would increase and become more difficult to meet.

As the Forest Service revises its management plans, activities that would become restricted or permitted could affect special designations. Forest Service planners would review inventoried roadless areas, which are generally managed for low development and resource protection and enhancement. If the Forest Service were to close any of the inventoried roadless areas to motorized recreation, displacement would occur and an increased demand on public lands would develop.

The BLM would continue to manage WSAs in a manner that would not impair the suitability of such areas for preservation as wilderness, known as the "non-impairment" mandate. IMP is temporary and applies only during the time as area is under wilderness review and until Congress acts on WSAs. If Congress acts on the President's recommendations for each WSA, a different policy would apply to the area, depending on whether or not Congress designated the area as wilderness. Areas designated as wilderness would be managed under BLM Manual 8560 - Management of Designated Wilderness Areas and under federal regulations at 43 CFR 6300. Areas released from wilderness study would no longer be subject to the IMP, and would be managed under general BLM management policies found within the RMP.

4.4.1.9 Tribal Treaty Rights and Interests

Enhanced management of special designations would emphasize the importance of cultural, geologic and vegetation resources and would not likely interfere with tribal treaty rights and traditional cultural uses of unoccupied public lands. Through such designations impacts on vegetation, special status species, fish and wildlife and water resource would be reduced and augment tribal members wishing to exercise tribal treaty rights of hunting, fishing, and gathering.

4.5 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.5.1 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.5.1.1 Summary

Impacts Common to All Alternatives

None of the alternatives would result in changes in population or changes in the demand for housing, schools, and public facilities and services. No low-income or minority populations would be displaced or separated from community facilities, nor would minority businesses be disrupted; so low-income and minority groups would not be disproportionately affected through these types of actions.

Wherever possible in its land use management decisions, the BLM would avoid economic effects on the Tribes with interests within the PFO boundary through government-to-government consultation. Land tenure adjustments could affect tribal uses, such as forage, hunting, and wood gathering. The potential for this varies by alternative with the amount of land to be disposed, with the highest potential for impacts in Alternative D (approximately 60,700 disposed acres), followed by Alternative A (approximately 32,000 disposed acres), Alternative B (approximately 28,150 disposed acres), and Alternative C (approximately 24,950 disposed acres).

Important industry sectors that rely on public lands' resources in the planning area include minerals and energy, livestock grazing, commercial timber sales and recreation. In all alternatives, there would be no change in the lands available for commercial timber sales, unless

these areas were to increase or decrease due to other management actions, such as land tenure adjustments or vegetation treatments for fire and fuels reduction **(Table 4.5-1)**. Therefore, no changes in employment, income, and economic activity would result directly from management actions relating to commercial timber. Management actions relating to livestock grazing, minerals and energy and recreation differ among alternatives and could result in incremental differences in local income and employment.

The decrease in open OHV designations in Alternatives B, C, and D could be offset by an increase in recreationists who enjoy more serene conditions, because most visitors to the planning area attach the highest importance to obtaining environmental awareness and to managing for environmental benefits. Likewise, recent studies suggest that more primitive recreation opportunities, such as mountain biking, horseback riding, hiking, and camping, are favored by the greatest percentage of visitors (University of Idaho 2000); therefore, reducing open or undesignated OHV acreage is not expected to reduce tourism revenue and jobs within the planning area.

Alternative A

No changes to the current management of the minerals and energy, livestock grazing, commercial timber sales, and recreation would occur; therefore, there would be no resulting changes to social values or the local economy. Alternative A would provide the greatest total acreage open to minerals and energy development without surface occupancy restrictions (approximately 611,600 acres), the largest acreage open to livestock grazing (approximately 571,700 acres), and the largest area available for open OHV travel (approximately 70,600 acres designated as open and approximately 352,000 acres available for open OHV travel that are undesignated).

Alternative B

The decrease in the lands available for livestock grazing, as a result of other management actions, in Alternative B could result in higher costs and a consequent reduction in income for permittees to the extent that these reductions would require permittees to lease additional private land, purchase additional forage, or reduce livestock numbers over the long term. The resultant loss in livestock grazing fees would mean lower returns to the affected counties from livestock grazing.

Alternative B would result in a 58% decrease in the public lands available for minerals and energy entry and development (without surface occupancy restrictions), which could result in a decrease in employment, income, and overall local economic activity, depending on the level of minerals and energy development potential and interest on these lands. The level of Fluid Minerals activity would not change substantially because the area closed to Fluid Minerals entry in areas of High oil and gas potential would not increase. The largest increase in Fluid Mineral closure and administratively unavailable acreage would be in the area of Low oil and gas occurrence potential. However, about 54,100 acres of the Curlew area that would be administratively unavailable lies within Medium potential for oil and gas occurrence (a 383% increase over Alternative A). Employment in the mining sector in the planning area represents about 9% of total local employment.

Table 4.5-1. Comparison of Socioeconomic Indicators by Alternative

	Alternative			
	A	**B**	**C**	**D**
Changes in population trends	No change	Changes not anticipated.	Changes not anticipated.	Changes not anticipated.
Changes in the local housing market	No change	Changes not anticipated.	Changes not anticipated.	Changes not anticipated.
Changes in the demand for public services and facilities	No change	Changes not anticipated.	Changes not anticipated.	Changes not anticipated.
Changes in employment rates	No change	Decreasing the lands available for minerals and energy entry could decrease minerals and energy employment; however this is not expected because actual minerals and energy activity is not expected to change.	Decreasing the lands available for minerals and energy entry could decrease minerals and energy employment; however this is not expected because actual minerals and energy activity is not expected to change.	Increasing the lands available for minerals and energy entry could increase minerals and energy employment, however this is not expected because actual minerals and energy activity is not expected to change.
Changes in total income or earnings	No change	Reductions in available AUMS could increase costs and decrease incomes of permittees. Decreasing the lands available for minerals and energy entry could decrease income and earnings from the minerals and energy industry; however this is not expected because actual minerals and energy activity is not expected to change.	Greater reductions in available AUMS than in Alternative B could increase costs and decrease incomes of permittees to a greater extent. Decreasing the lands available for minerals and energy entry could decrease income and earnings from the minerals and energy industry; however this is not expected because actual minerals and energy activity is not expected to change.	The greatest reduction in available AUMS could increase costs and decrease incomes of permittees to the greatest extent of all of the alternatives. Increasing the lands available for minerals and energy entry could increase income and earnings from the minerals and energy industry; however this is not expected because actual minerals and energy activity is not expected to change.
Changes in satisfaction with access to community resources and community conditions	No change	Changes not anticipated.	Changes not anticipated.	Changes not anticipated.
Changes in the safety of children	No change	Would not affect the safety of children.	Would not affect the safety of children.	Would not affect the safety of children.
Environmental Justice	No change, possible effects on tribal treaty rights and interests due to land disposal potentially lower than Alternative D.	Low-income and minority groups would not be disproportionately affected; possible effects on tribal treaty rights and interests due to land disposal potentially lower than Alternatives A and D.	Low-income and minority groups would not be disproportionately affected; possible effects on tribal treaty rights and interests due to land disposal potentially lower than all alternatives.	Low-income and minority groups would not be disproportionately affected; possible effects on tribal treaty rights and interests due to land disposal potentially higher than all alternatives.

Alternative C

The decrease in the lands available for livestock grazing, as a result of other management actions, in Alternative C, would be greater than in Alternative B and could result in a greater increase in costs and reduction in income for permittees than in Alternative B, as well as a greater reduction in livestock grazing fees and returns to the affected counties from livestock grazing.

Similar to Alternative B, the overall decrease in lands open to minerals and energy entry and development (without surface occupancy restrictions) in Alternative C (approximately 11.3% less than in Alternative A) could result in a decrease in employment, income, and overall local economic activity, depending on the level of minerals and energy development potential and interest on these lands. It is anticipated that the level of overall minerals activity would not change substantially. The level of Fluid Minerals and energy activity would not change substantially due to the locations of the closures and NSO restrictions relative to High oil and gas potential areas.

Alternative D

The decrease in the lands available for livestock grazing, as a result of other management actions, would be greatest in Alternative D and could result in the greatest increase in costs and reduction in income for permittees than in all of the other alternatives, as well as the greatest reduction in livestock grazing fees and returns to the affected counties from livestock grazing of all of the alternatives.

A slight decrease in the lands available for minerals and energy entry and development (without surface occupancy restrictions) in Alternative D (approximately 0.4% less than in Alternative A) could result in a decrease in employment, income, and overall local economic activity, depending on the level of minerals and energy development potential and interest on these lands. The level of Fluid Minerals and energy activity would not change substantially due to the locations of the closures and NSO restrictions relative to High oil and gas potential areas.

Table 4.5-1 presents a comparison of the relative effects of each alternative on the economic indicators described in Section 4.5.2.

Comparison of Local Effects of Alternatives

Land disposal, vegetation treatments for fuels reduction, and reductions in lands available for livestock grazing could have the greatest direct effect on local economic conditions, as summarized in **Table 4.5-2**. The physical effects of these actions could result in relative differences in economic effects among alternatives because disposal would affect payments in lieu of taxes (PILTs) and local taxes and treatments could affect livestock grazing, recreation, and timber sales. Reductions in land available for livestock grazing could affect the costs to, and incomes of, local permittees, depending upon the level of utilization of permitted allotments.

Fuels treatment effects on livestock grazing show the theoretical cost of removing public lands from livestock grazing during the implementation of vegetation treatment for fire and fuels, in terms of fees to the BLM and the costs to ranchers of finding other grazing areas or replacement hay. Because fuels treatment on lands containing commercial timber would involve the sale of the timber, fuels treatment effects on commercial timber would result in revenues that could

Table 4.5-2. Socioeconomic Comparison of Alternatives

	Alternative			
	A	**B**	**C**	**D**
Impacts from Land Tenure Adjustments				
Potential PILT reduction	$38,640	$33,780	$29,940	$72,840
Potential property tax increase	$16,905	$14,910	$13,100	$31,870
Impacts from Fuels Treatments (temporary)				
Potential loss in livestock grazing fees (over 10 years)	$1,672	$58,653	$25,137	$75,411
Potential cost to ranchers (over 10 years)	$13,405 to $45,600	$469,224 to $1,596,000	$201,096 to $684,000	$603,288 to $2,052,000
Economic stimulus based on treatment footprint acres (annual)	$24,990	$913,238	$403,662	$1,191,950
Impacts from Grazing				
Potential loss in livestock grazing fees (annual)	Not Applicable	$5,152	$294	$12,936
Potential cost to ranchers (over 10 years)	Not Applicable	$41,219 to $140,200	$2,352 to $8,000	$103,488 to $352,000
Impacts from Minerals and Recreation				
Acres available for minerals (all types) and energy development (without surface occupancy restrictions)	292,700	122,700	259,500	291,400
Acres open to recreation OHV use	413,500	0.0	0.0	0.0
Impacts from the RFDS of Fluid Minerals				
Estimated potential revenues from power plant operation	$19,710,000	Potentially reduced as a result of a 58% decrease in total lands available to Fluid Minerals activities with no NSO	$19,710,000	$19,710,000
Potential loss in livestock grazing fees (over 10 years)	$460	$460	$460	$460
Potential cost to ranchers (over 10 years)	$3,650 for leasing to $12,400 for hay replacement	$3,650 for leasing to $12,400 for hay replacement	$3,650 for leasing to $12,400 for hay replacement	$3,650 for leasing to $12,400 for hay replacement

differ among alternatives. Wildland fire management, through fuels treatments, represents a cost to the BLM to protect and restore the area within the treatment footprint and would result in direct expenditures within the local economy that would provide an additional indirect stimulus to local jobs and income.

The acreage available for minerals and energy entry and development is an indicator of the volume of economic activity that would be possible, depending upon the level of interest in and mineral resources on available lands. The acreage open to recreational OHV use would vary among alternatives and provides a measure of the level of satisfaction that could be expected of motorized users. The reasonably foreseeable development of Fluid Minerals within the planning area would result in an economic impact from power generation. The use of land for the plant could result in a reduction in livestock grazing lands that could increase costs to ranchers on the affected PFO allotments and reduce livestock grazing fees and returns to counties.

4.5.1.2 Methods of Analysis

Impact analyses and conclusions are based on the existing and projected population, employment, income, housing, earnings, social values, economic contribution of public lands, and government services conditions presented in the Final Pocatello Resource Management Plan Economic Report (Tetra Tech 2004). This socioeconomic and demographic data within the planning area was examined to determine these resources' sensitivity to the changes in resource management proposed in each alternative. Impacts described in this section are based on preliminary design of the alternatives under consideration. Effects are quantified where possible, but potential socioeconomic impacts were not modeled.

Minerals and energy, livestock grazing, forestry, commercial timber sales, and recreation are the important industry sectors that rely on public lands' resources in the planning area. The effects of management actions as they relate to these sectors are described qualitatively, based on changes in the acreage of land available for each use in each alternative. The proposed management actions are designed to allow for economic development, while minimizing any external influences, such as resource degradation. Dollar values are estimated for the potential effects of land tenure adjustments and fuels treatments on these important industry sectors. The potential effects of land tenure adjustments on PILTs and the local tax base and the effects of vegetation restoration costs also are quantified.

In the absence of quantitative data, impacts are described using ranges of potential impacts or in qualitative terms, as appropriate. Data sources for historic trends, existing conditions, and projections include the Bureau of Economic Analysis, US Census Bureau, the Sonoran Institute, County General Plans, and other state and local publications.

Indicators. Indicators used to determine the relative effect on socioeconomic resources and environmental justice populations from management actions proposed by the different alternatives include changes in the following:

- Population trends.
- Local housing market.
- Demand for public services and facilities.

- Employment rates.
- Total income or earnings.
- Access to public land resources.
- Safety of children.

Methods and Assumptions. For analysis purposes, it is expected that within 10 years vegetation treatment for fire and fuels reduction would have been implemented and the economic effects of implementation would have occurred.

Social, economic, physical, environmental, or health impacts that disproportionately affect any particular low-income or minority group would be environmental justice effects.

In all alternatives, Socioeconomics and Environmental Justice would not be affected by Air Quality, Cultural Resources, Soils, Paleontological Resources, Vegetation, Fish and Wildlife, Special Status Species, Visual Resources, Water Resources, and Special Designations so these resources and resource uses are not further addressed under this section.

4.5.1.3 Impacts Common to Action Alternatives

Impacts on Minority and Low-income Populations: No low-income or minority populations would be displaced or separated from community facilities, nor would minority businesses be disrupted; so low-income and minority groups would not be disproportionately affected through these types of actions.

Impacts from Wildland Fire Management Direction: Wildland fire management, through fuels treatments, represents a cost to the BLM to protect and restore the area within the treatment footprint and would result in direct expenditures within the local economy that would provide an additional indirect stimulus to local jobs and income (an economic multiplier effect). These effects would vary by alternative, as the treatment footprint varies by alternative. All treatment costs are considered variable costs because they are contracted by the BLM and require the purchase of varying amounts of materials and services within the local economy, depending on the amount of treatment considered in each alternative. It is expected that approximately 70% of variable costs are spent in the local economy (BLM 2004i). The different economic effects are described for each alternative under Impacts from Fuels Treatments, Economic Stimulus Based on Treatment Footprint Acres.

Impacts from Forestry Direction: Commercial timber sales rely on public lands' resources in the planning area. In all alternatives, there would be no change in the lands available for commercial timber sales, unless these areas were to increase or decrease due to other management actions, such as vegetation treatments for fire and fuels reduction.

Impacts from Lands and Realty Direction: In the action alternatives, the BLM would improve administrative management efficiency, natural resources management and protection, and public impact consistent with resource values. The BLM also would adjust and consolidate public lands ownership patterns through land tenure adjustments. Necessary access to public land when lands are transferred out of federal ownership would be retained. Land tenure adjustments could affect the local economy by increasing the tax base of the county, city, or other political subdivision in which private entities purchase lands made available for disposal by the BLM. This could enable

local governments to better handle the pressures of increasing population and an increasing need for public services and facilities, as well as the public demand for recreation.

Overall, by improving management efficiency and placing restrictions on surface-disturbing activities, management actions proposed in the action alternatives would have long-term effects on socioeconomic and environmental justice resources by eliminating conflicts among uses and users of public lands and improving the quality of experience for each type of user group.

Impacts from Livestock Grazing Direction: In all alternatives, continued livestock grazing on public lands would ensure the continued return of livestock grazing receipts to the counties within the planning area, which totaled $38,404 in 2003. In addition the social welfare of the rural population of the planning area would be maintained by preserving a unique way of life. This land would be managed to provide forage for livestock grazing consistent with other resources and resource uses as part of an ecologically healthy system and consistent with multiple use and sustained yield. As described in Section 4.3, Livestock Grazing, reductions in available AUMs would occur in Alternatives B, C, and D as a result of other management actions, including land tenure adjustments, conversion of unpermitted allotments, minerals and energy development, suspension due to selenium effects, location in the BSD, and RNA designation. Impacts on livestock grazing due to fuels treatments are discussed separately. Permittees could be required to lease additional private land, purchase additional forage, or reduce livestock numbers over the long term, depending upon the level of use of the affected allotments and the number of AUMs affected. The number of AUMS affected varies by alternative.

Impacts from Recreation Direction: In Alternatives B, C, and D, there would be a 413,300-acre reduction in open OHV areas because currently open (or undesignated) OHV use would be limited to designated routes, and approximately 12,700 acres would be closed. An additional, approximate 18,700 acres within the Soda Springs Hills area would be subject to potential seasonal closures. These restrictions would benefit the user experience for recreationists who enjoy more serene environments, but OHV users who enjoy open terrain on which to navigate would be likely to experience lower levels of satisfaction. Until travel management plans are complete, which would designate routes, motorized recreational opportunities would be restricted in areas designated as closed; motorized activity in the remaining planning area would be limited to existing routes. Approximately 601,100 acres would be available for OHV use, limited to designated or existing routes, which is a 411,200-acre increase over the approximately 189,900 acres of lands with existing and designated trail designations in Alternative A.

Overall, limiting OHVs to existing or designated routes would minimize conflicts between motorized and nonmotorized users, providing for an overall improved experience for all users of public lands. Because most visitors to the planning area attach the highest importance rating to obtaining environmental awareness and to managing for environmental impacts, and because more primitive recreation opportunities are favored by the greatest percentage of visitors (University of Idaho 2000), the reduction in open or undesignated OHV acreage is not expected to reduce, but could increase, tourism revenues and jobs within the planning area.

4.5.1.4 Alternative A

No changes in current BLM management direction would occur to affect population or the demand for housing, schools, and public facilities and services. Demand for recreation is expected to continue to grow (Outdoor Industry Association 2002), with anticipated recreation visits increasing at an annual rate of 1-4%. Perceived social wellbeing, as measured by satisfaction with access to community resources and community conditions, would not change. This alternative would enhance the wellbeing of groups who feel access to public lands should remain at current levels and with the existing recreational use mix. Alternative A would maintain approximately 611,600 acres open to minerals and energy entry and development (without surface occupancy restrictions). The potential economic effects of treatments on livestock grazing, timber sales, and the local economy; land tenure adjustments on PILTs and the local tax base; and the RFDS for Fluid Minerals direction are quantified below.

Impacts from Wildland Fire Management Direction: Fuels treatments would temporarily reduce the acreage available for livestock grazing, resulting in increased costs to ranchers in the short term. Fuels treatments also would have associated restoration costs.

- *Impacts on Livestock Grazing:* Approximately 60 AUMs would be temporarily unavailable during the first year of treatment, and approximately 120 AUMs would be temporarily unavailable for livestock grazing for each that follows. Treatment would represent a loss in fees of approximately $88 in the first year and $176 each year thereafter. Over 10 years, the total loss in livestock grazing fees would be approximately $1,672. The cost to ranchers over 10 years would range from $13,405 for leasing the equivalent livestock grazing land to $45,600 for hay replacement.
- *Economic Stimulus Based on Treatment Footprint Acres:* Assuming an average cost to the BLM for wildland fire treatment is $105 per treatment acre (BLM 2004i) and given the yearly treatment footprint acreage of approximately 340 acres, the annual direct expenditure by the BLM would be $35,700. Approximately 70% of the BLM treatment expenditures on food, fuel, lodging, maintenance, vehicles, administrative costs, aviation, warehousing and seeding would occur in the local economy, totaling $24,990 annually. This local economic stimulus would be expected to have a multiplier effect, generating secondary economic activity.

Impacts from Lands and Realty Direction: Land tenure adjustments would have impacts on PILT payments and taxes.

- *Impacts on PILTs and taxes:* The average PILT per acre of public lands in the PFO in 2003 was approximately $1.20 (BLM 2006b). Disposing of approximately 32,200 acres would result in an average PILT reduction of $38,640. If this acreage were purchased by a private landholder, this figure would be offset by an increase in the local property tax base. Given an average property value of $35 per acre for upland dry pasture within the planning area and an average property tax rate of approximately 1.5% per acre (Chidester 2005), property taxes would increase on average by $16,905 in Alternative A.

Impacts from the RFDS of Fluid Minerals Direction: Setting up and drilling a well can employ approximately 20 workers for about three or four months in an area. Typically, most of the workers would not be local, although some locals may obtain employment in road and

pipeline construction. Approximately 40 drill crewmembers and 200 additional people would be involved in constructing a typical plant. The increase in employment of personnel involved in well construction would be only for the duration of the construction. Expenditures for equipment, materials, fuel, lodging, food, and other needs would stimulate the local economy over the duration of development. Once the well field and power plant are operating, about five permanent employees would be needed for field production, and 10 additional employees would be needed for the plant (BLM 2001b). As of February 2005, the retail revenues from 1 kilowatt hour of electricity averaged $0.075, according to the Energy Information Administration ([EIA] 2005). Given that a 30-MW plant could generate 262,800,000 kilowatt hours (30MW * 1,000 KW/MW * 8,760 hour/year) if operated continuously, estimated revenues would be $19,710,000.

- *Impacts on Livestock Grazing:* The RFDS of Fluid Minerals could also impact livestock grazing. Approximately 185 acres would be required for the anticipated wells. Assuming an average of 6 acres per AUM, approximately 31 AUMs would be unavailable for livestock grazing. Assuming that one AUM produces 800 pounds (0.4 ton) of forage and the price of hay is approximately $100 per ton, the cost to ranchers of purchasing this additional hay would be $1,240. Assuming that the cost of leasing private lands would be $11.76 per AUM, based on the five-year average of the Idaho private land lease rates from 2001 to 2005, the cost of leasing the equivalent livestock grazing land would be $365. Using the five-year average of the BLM livestock grazing fee (from 2001 to 2005) of $1.47 per AUM, the loss in revenue collections from these disposed AUMs would represent a loss in fees of approximately $46. The cost to ranchers over 10 years would range from $3,650 for leasing the equivalent livestock grazing land to $12,400 for hay replacement. Over 10 years, the total loss in livestock grazing fees to the BLM would be approximately $460.

The RFDS for Fluid Minerals projects the development of a five well, 1,000 barrel per day, oil field. At a price of $55 per barrel, this translates into more than $20,000,000 per year of production added to the annual Gross Domestic Product of the US.

4.5.1.5 Alternative B

A decrease in the lands available for minerals and energy entry and development under Alternative B could have an economic effect on employment, income, and overall local economic activity, depending on the level of minerals and energy development activity on these lands. Alternative B would maintain approximately 122,700 acres as open to minerals and energy entry and development (without surface occupancy restrictions). Changes in the level and mix of use on public lands in open OHV designations could be offset by an increase in recreationists who enjoy more serene environments. According to a University of Idaho study in 2000, most visitors prefer more primitive recreation opportunities, so the social wellbeing of visitors with these values would be enhanced. The potential economic effects of treatments on livestock grazing, timber sales, and the local economy; the potential economic effects of land tenure adjustments on PILTs and the local tax base; and the potential economic effects of management actions that would result in a reduction in the area available for livestock grazing are quantified below.

Impacts from Wildland Fire Management Direction:

- *Impacts on Livestock Grazing*: Approximately, 2,100 AUMs would be temporarily unavailable for livestock grazing during the first year of treatment, and approximately 4,200 AUMs would be temporarily unavailable for livestock grazing for each year following. Treatment would represent a loss in fees of approximately $3,087 in the first year and $6,174 each year thereafter. Over 10 years, the total loss in livestock grazing fees would be approximately $58,653. The cost of treatment to ranchers over 10 years in Alternative B would range from $469,224 for leasing the equivalent livestock grazing land to $1,596,000 for hay replacement, would be about $455,819 to $1,550,400 greater than in Alternative A.
- *Economic Stimulus Based on Treatment Footprint Acres:* Given the yearly treatment footprint acreage of approximately 12,425 acres, the annual direct BLM expenditure due to wildland fire treatment would be $1,304,625, resulting in an annual infusion of $913,238 into the local economy.

Impacts from Lands and Realty Direction: In Alternative B, approximately 28,150 acres of public lands would be considered for disposal, which would remove resources found on these lands from federal protection and public access. If these lands were disposed of, the reduction would be approximately 4,050 acres less than the approximately 32,200 acres in Alternative A. Approximately 49,300 acres of all Zone 4 BLM lands would be open to snowmobiling and limited OHV use. The level of impact for these uses would depend on the location in Zone 4 of the acreage that is sold. The disposal of these lands could result in a potential loss of economic productivity due to the reduction in lands available for minerals and energy development, which could be offset by private development. The potential economic effects of land tenure adjustments and treatment on livestock grazing and timber sales and the effects of land tenure adjustments on phosphate mining, PILTs and the local tax base, and foreseeable oil and gas and geothermal development are quantified below.

- *Impacts on PILTs and taxes:* Based on the data provided by the BLM Idaho State Office land law examiner, the average PILT per acre of public lands in the PFO in 2003 was approximately $1.20. Disposal of approximately 28,150 acres would result in an average PILT reduction of roughly $33,780, about $4,860 less than in Alternative A. If this acreage were purchased by a private landholder this figure would be offset by an increase in the local property tax base. Given an average property value of $35 per acre for upland dry pasture within the planning area and an average property tax rate of 1.5% per acre (Chidester 2005), property taxes would increase on average by $14,910 in Alternative B, about $1,995 less than in Alternative A.

Impacts from Livestock Grazing Direction: Compared to Alternative A, approximately 12,380 fewer acres, or 3,505 fewer AUMs, would be available for livestock grazing due to management actions. If all of these AUMs were fully utilized, requiring permittees to lease additional private land or purchase additional forage, the annual cost to the affected permittees could range from $41,219 for leasing the equivalent livestock grazing land to $140,200 for hay replacement. At the 5-year average BLM livestock grazing fee of $1.47 per AUM, annual receipts collected by the BLM for livestock grazing would be reduced by $5,152, resulting in a proportional reduction in

returns to counties from livestock grazing. These effects would be offset to the extent that fewer than the permitted AUMs per affected allotment are currently utilized.

Impacts from Minerals and Energy Direction: In Alternative B, lands open to Fluid Minerals development with no NSO requirements would be approximately 70,000 acres less than in Alternative A. Lands open to Solid Leasable Minerals development, including phosphate leasing, would be approximately 8,800 acres less than in Alternative A. Lands open to Mineral Materials development, such as sand and gravel, would be approximately 1,300 acres greater than in Alternative A. For Locatable Minerals development, lands open would be approximately 17,700 acres less than in Alternative A.

The overall decrease in lands open to minerals and energy entry and development in Alternative B could have an economic effect on employment, income, and overall local economic activity, depending on the level of minerals and energy development potential on these lands. In Alternative B it is anticipated that, although fewer acres would be open to Fluid Mineral development than in Alternative A, the level of Fluid Minerals and energy activity would not change substantially due to the locations of the closures, administratively unavailable areas, and NSO stipulations relative to High oil and gas potential areas. Under Alternative B, approximately 58% fewer acres would be open to Fluid Minerals activities (with no NSO stipulations) than under Alternative A, which could reduce Fluid Minerals development and the associated employment and revenues. However, no additional acreage would become unavailable in areas of High potential for oil and gas occurrence, and only an 11.1% increase in NSO areas of High potential would occur. The largest increase in restrictions would occur with an additional 215,000 acres designated as administratively unavailable for Fluid Minerals activities within the area of Low potential for oil and gas occurrence. The area unavailable for Fluid Minerals activities in Medium oil and gas occurrence potential would increase by roughly 42,900 acres. NSO restrictions in areas of Low and Medium potential would decrease by 51.3% and 23.3%, respectively, and the total acreage covered by NSO stipulations would decrease by 88,000 acres.

Currently, mineral processing industries employ 1,500 personnel, which is approximately 1.3% of employment within the planning area and is close to the total number of employed workers in Oneida County. Employment in the mining sector in the planning area represents about 9% of total local employment.

Impacts from the RFDS of Fluid Minerals Direction: Under Alternative C, there would be no reduction in available acres in areas of High oil and gas potential, thereby minimizing effects on the RFDS for Fluid Minerals within the planning area. However, the overall 58% decrease in acres available for Fluid Minerals activities under this alternative could affect the RFDS for Fluid Minerals, depending on the locations that would be developed.

- *Impacts on Livestock Grazing:* If the reduction in acreage available for oil and gas activities were to reduce the number of projected oil wells, then the reduction in the number of wells also would decrease the impacts of the RFDS of Fluid Minerals on grazing, reducing the potential increased costs to ranchers and loss in grazing fees to the BLM (described under Alternative A).

4.5.1.6 Alternative C

Similar to Alternative B, a decrease in the lands available for minerals and energy entry and development in Alternative C could have an economic effect on employment, income, and overall local economic activity, depending on the level of mineral development activity on these lands. Alternative C would maintain approximately 259,500 acres open to minerals and energy entry and development (without NSO restrictions). Changes in the level and mix of use on public lands in open OHV designations could be offset by an increase in recreationists who enjoy more serene environments. The potential economic effects of treatments on livestock grazing, timber sales and the local economy; the potential economic effects of land tenure adjustments on PILTs and the local tax base; and the potential economic effects of management actions that would result in a reduction in the area available for livestock grazing are quantified below.

Impacts from Wildland Fire Management Direction:

- *Impacts on Livestock Grazing*: Approximately 900 AUMs would be temporarily unavailable for livestock grazing during the first year of treatment, and approximately 1,800 AUMs would be temporarily unavailable for livestock grazing for each subsequent year. Treatment would represent a loss in fees of approximately $1,323 in the first year and $2,646 each year thereafter. Over 10 years, the total loss in livestock grazing fees would be approximately $25,137. The cost of treatment to ranchers over 10 years in Alternative C would range from $201,096 for leasing the equivalent livestock grazing land to $684,000 for hay replacement, about $187,691 to $638,400 greater than in Alternative A and $268,128 to $912,000 less than in Alternative B.
- *Economic Stimulus Based on Treatment Footprint Acres:* Given the yearly treatment footprint acreage of approximately 5,492 acres, the annual direct expenditure due to wildland fire treatment would be $576,660, resulting in an annual infusion of $403,662 into the local economy.

Impacts from Lands and Realty Direction: In Alternative C, approximately 24,950 acres of public lands (50% of Zone 4 lands available for disposal) would be considered for disposal, which would remove resources found on these lands from federal protection and public access. If these lands were disposed of, the reduction would be about 7,250 acres less than in Alternative A. Approximately 42,900 acres of all Zone 4 BLM lands would be open to snowmobiling and limited OHV use. The level of impact for these uses would depend on the location in Zone 4 of the acreage that is sold.

Impacts on PILTs and taxes: Based on the data provided by the BLM Idaho State Office land law examiner, the average PILT per acre of public lands in the planning in 2003 was approximately $1.2. Disposal of 24,950 acres would result in an average PILT reduction of roughly $29,940, about $8,700 less than in Alternative A and $3,840 less than in Alternative B. If this acreage were purchased by a private landholder, this figure would be offset by an increase in the local property tax base. Given an average property value of $35 per acre for upland dry pasture within the planning area and an average property tax rate of 1.5% per acre (Chidester 2005), property taxes would increase on average by roughly $13,100 in Alternative C, about $3,805 less than in Alternative A and $1,810 less than in Alternative B.

Impacts from Livestock Grazing Direction: Compared to Alternative A, approximately 980 fewer acres, or 200 fewer AUMs, would be available to livestock grazing due to management actions. If all of these AUMs were fully utilized, requiring permittees to lease additional private land or purchase additional forage, the annual cost to the affected permittees could range from $2,352 for leasing the equivalent livestock grazing land to $8,000 for hay replacement. Annual receipts collected by the BLM for livestock grazing would be reduced by $294, resulting in a proportional reduction in returns to counties from livestock grazing. These effects would be offset to the extent that fewer than the permitted AUMs per affected allotment are currently utilized.

Impacts from Minerals and Energy Direction: In Alternative C, lands open to Fluid Minerals development with no NSO stipulations would be approximately 33,200 acres less than in Alternative A. The lands open to Solid Leasable Minerals, including phosphate leasing, would be approximately 8,800 acres less than in Alternative A. The lands open to Mineral Materials development, such as sand and gravel, would be approximately 36,300 acres less than Alternative A. For Locatable Minerals development the lands open would be approximately 17,700 acres less than in Alternative A. The overall decrease in lands open to minerals and energy entry and development could have an economic effect on employment, income, and overall local economic activity, depending on the level of minerals and energy development potential on these lands. In Alternative C it would be anticipated that, although fewer acres would be open to Fluid Minerals development and a larger area would carry NSO stipulations than in Alternative A, the level of minerals and energy activity would not change substantially, due to the locations of the closures and stipulations relative to High oil and gas potential areas. The largest increase of NSO stipulations in areas of High oil and gas potential (32,900 acres, which is a 49.3% increase from Alternative A) would occur under this alternative.

Impacts from the RFDS of Fluid Minerals Direction: The effects from the RFDS of Fluid Minerals direction under Alternative C is expected to be the same as that described under Alternative A.

4.5.1.7 Alternative D

In Alternative D, a slight decrease in the lands available for minerals and energy entry and development is not anticipated to have a substantial effect on employment, income, and overall local economic activity, depending on the level of mineral development activity on these lands. Alternative D would maintain approximately 291,400 acres open to minerals and energy entry and development. Similar to Alternatives B and C, changes in the level and mix of use on public lands in open OHV designations in Alternative D could be offset by an increase in recreationists who enjoy more serene environments. The potential economic effects of treatments on livestock grazing, timber sales, and the local economy; the potential economic effects of land tenure adjustments on PILTs and the local tax base; and the potential economic effects of management actions that would result in a reduction in the area available for livestock grazing are quantified below.

Impacts from Wildland Fire Management:

- *Impacts on Livestock Grazing*: Approximately 2,700 AUMs would be temporarily unavailable for livestock grazing during the first year of treatment, and 5,400 AUMs

would be temporarily unavailable for livestock grazing for each year following. Treatment would represent a loss in fees of approximately $3,969 in the first year and $7,938 each year thereafter. Over 10 years, the total loss in livestock grazing fees would be approximately $75,411. The cost of treatment to ranchers over 10 years in Alternative D would range from $603,288 for leasing the equivalent livestock grazing land to $2,052,000 for hay replacement, about $589,883 to $2,006,400 greater than in Alternative A, $134,064 to $456,000 greater than in Alternative B, and $402,192 to $1,368,000 greater than in Alternative C.

- *Economic Stimulus Based on Treatment Footprint Acres:* Given the yearly treatment footprint acreage of 16,217 acres, the annual direct expenditure due to wildland fire treatment would be $1,702,785, resulting in an annual infusion of $1,191,950 in the local economy.

Impacts from Lands and Realty Direction: In Alternative D approximately 60,700 acres of public lands would be considered for disposal, which would remove resources found on these lands from federal protection and public access. If these lands were disposed of, the acreage reduction would be approximately 28,500 acres greater than in Alternative A. Approximately 42,800 acres of all Zone 4 BLM lands would be open to snowmobiling and limited OHV use. The level of impact for these uses would depend on the location in Zone 4 of the acreage that is sold.

In Alternative D, as in Alternatives B and C, these lands would be disposed of in the public interest for state and local government recreation and public purpose uses in most cases; or, if they are purchased by a private entity, the tax base of the local government would increase as a result.

*Impacts on PILTs and taxes***:** Based on the data provided by the BLM Idaho State Office land law examiner, the average PILT per acre of public lands in the planning in 2003 was approximately $1.20. Disposal of approximately 60,700 acres would result in an average PILT reduction of roughly $72,840, about $34,200 greater than in Alternative A, $39,060 greater than in Alternative B, and $42,900 greater than in Alternative C. If this acreage were purchased by a private landholder, this figure would be offset by an increase in the local property tax base. Given an average property value of $35 per acre for upland dry pasture within the planning area and an average property tax rate of 1.5% per acre (Chidester 2005), property taxes would increase on average by about $31,870 in Alternative D, roughly $14,965 greater than in Alternative A, $16,960 greater than in Alternative B, and $18,770 greater than in Alternative C.

Impacts from Livestock Grazing Direction: Compared to Alternative A, approximately 44,600 fewer acres, or 8,800 fewer AUMs, would be available for livestock grazing due to management actions. If all of these AUMs were fully utilized, requiring permittees to lease additional private land or purchase additional forage, the annual cost to the affected permittees could range from $103,488 for leasing the equivalent livestock grazing land to $352,000 for hay replacement. Annual receipts collected by the BLM for livestock grazing would be reduced by $12,936, resulting in a proportional reduction in returns to counties from livestock grazing. These effects would be offset to the extent that fewer than the permitted AUMs per affected allotment are currently utilized.

Impacts from Minerals and Energy Direction: In Alternative D, land open to Fluid Minerals development with no NSO requirements would be approximately 1,300 acres less than in Alternative A. The land open to Solid Leasable Minerals, like phosphate leasing, would be approximately 6,300 acres greater than in Alternative A. The land open to Mineral Materials development, such as sand and gravel, would be approximately 16,400 acres greater than in Alternative A. The land open Locatable Minerals would be the same as in Alternative A. The overall increase in lands open to minerals and energy entry and development could have an economic effect on employment, income, and overall local economic activity, depending on the level of minerals and energy development potential on these lands. In Alternative D it is anticipated that, although a slightly larger area would be open to minerals and energy development compared to other alternatives (except for Fluid Minerals), the level of minerals and energy activity would not change substantially because of the locations of the closures and stipulations relative to areas with known mineral occurrences and High minerals potential. The same number of acres would be open to Fluid Minerals development under Alternative D as under Alternative A, although 1,300 more acres would be covered by NSO stipulations in High oil and gas potential areas. The level of minerals and energy activity is not expected to change substantially because no additional acreage would be closed under Alternative D. Fewer acres would carry NSO restrictions than in Alternatives B and C.

Impacts from the RFDS of Fluid Minerals Direction: The effects from the RFDS of Fluid Minerals direction under Alternative D is expected to be the same as that described under Alternative A.

4.5.1.8 Cumulative Impacts

Past, Current, and Future Actions: Past, current, and planned future projects that have affected or would affect the economy, social structure, or tribal treaty rights and interests in the planning area or the resources or resource uses occurring on BLM-administered public lands would result in cumulative socioeconomic impacts. The following past and current activities have affected the trends in resource uses in the planning area and the incomes and employment derived from these uses, as well as environmental justice populations in the planning area. Land tenure adjustment, wildland fire management, timber harvesting, minerals and energy development, livestock grazing, and recreation OHV use have occurred in the planning area and would continue to influence the economy and social wellbeing of users of public lands within the region. The BLM would continue to work with stakeholders and manage the land in the best interest of the public, thereby continuing to protect socioeconomic and environmental justice resources on its lands.

Land tenure adjustments would continue to consolidate BLM-managed lands, which would continue to improve the manageability of these lands and, thereby, the quality of their use. These adjustments also would be likely to continue the trend of decreased acreage managed by BLM.

Expenditures within the local and regional economy for vegetation treatments and suppression of wildland fires would continue to provide a stimulus to the local economy and would add incrementally to similar expenditures by other federal agencies on a regional basis. In addition, wildland fire management in the planning area would contribute incrementally to the timber available for harvest, improvement of livestock grazing lands, and areas open to recreation regionally, thus adding to regional incomes and employment based on these expenditures.

No changes in the acreage available for commercial timber in the planning area would occur to contribute to the trends in commercial timber harvesting on federal lands.

The acreage available for Fluid Minerals and energy entry and development under Alternative B would not be reduced in areas identified as having a High potential for oil and gas, and this would not represent a change in the availability (acreage open) of this area from existing conditions. However, the overall reduction in lands that could be used for minerals activities, particularly Fluid Minerals, in combination with other actions, including roadless restrictions on USFS lands, could reduce the overall availability of federal lands that could be explored and developed for Fluid Minerals and energy development. This cumulative reduction in the availability of federal lands could reduce the future levels of Fluid Minerals and energy development and could contribute to cumulative effects on employment and income in this sector.

Continued livestock grazing on PFO public lands would contribute to the incomes of local permittees, which would be a factor in maintaining a unique way of life that is present in the region and adding incrementally to the ranchers' incomes locally and regionally. Changes in the permitted levels of livestock grazing under the RMP for the PFO could contribute to incremental changes occurring to livestock grazing on federal lands regionally, which could be realized as an effect on ranchers' costs and incomes.

Restrictions on OHV use that could occur as a result of the proposed RMP for the PFO would not be expected to change the economic or social contribution of recreation in the local economy or within the region, due to continued population growth and demand. However, these restrictions could increase pressure on areas in which open motorized use is available.

4.5.1.9 Tribal Treaty Rights and Interests

The tribes are active participants in the RMP process, and recognition of tribal treaty rights and interests are considered with all associated management activities and land uses. This includes treaty rights, tribal sovereignty, freedom of religion, protection of sacred and archaeological sites, and contemporary political and social rights, including economic viability. Wherever possible in its land use management decisions, the BLM would avoid economic effects on the tribes through government-to-government consultation regarding land tenure adjustments within ceded reservation lands and when considering land management actions related to tribal treaty rights. However, if a reduction in wildlife habitat through land tenure adjustments could not be avoided, the affected land would be removed from tribal use for forage, hunting, and gathering. The potential for this varies by alternative with the area of land to be disposed of, with the highest potential for impacts in Alternative D (approximately 60,700 disposed acres), followed by Alternative A (approximately 32,000 disposed acres), Alternative B (approximately 28,150 disposed acres), and Alternative C (approximately 24,950 disposed acres).

4.6 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are impacts that remain following the implementation of mitigation measures, or impacts for which there are no mitigation measures. Virtually all potential unavoidable adverse impacts are indirect and difficult to quantify. Some unavoidable adverse

impacts would occur as a result of proposed management under one or more of the alternatives. Others result from the use of public lands within the planning area.

Development of minerals and energy resources could create visual intrusions, soil erosion, compaction problems, loss of vegetation cover, and damage or destruction of cultural resources. Unauthorized OHV travel could cause scarring, increased soil erosion, and loss of vegetation cover. WFU could cause changes to the scenic quality of the landscape, the loss of habitat, and the loss of undiscovered cultural and paleontological resources. Vegetative treatments could cause the displacement of wildlife, decreases in the quantity and quality of forage, and the loss of non-target ecosystem components. Changes in the amount of recreational visitation and patterns of use could result in increased conflicts between users, vandalism, illegal collection of cultural resources, and unanticipated changes in resource conditions.

Proposed restrictions on recreation, livestock grazing, and other resource uses to protect sensitive resources and other values would lessen the ability of operators, permittees, individuals, and groups to use public lands and could increase operating costs. The accidental or unauthorized introduction of invasive species/noxious weed or exotic animal species could result in the harm or loss of populations of native plants or animals. Ecosystem components could be impacted if FRCC 2 and 3 areas are not treated prior to a high-intensity wildland fire. If fuels are not treated the risk of loss to life and property would be higher as rural growth expands the WUI.

4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., minerals and energy) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., loss of special status species habitat or the disturbance of cultural resources).

Minerals and energy development would result in an irreversible loss of vegetation resources, habitat, and livestock grazing forage. Reclamation of disturbed areas would reduce the magnitude of these impacts following the action, but changes in migration patterns and the displacement of local populations during the action could cause an irreversible loss in localized wildlife populations. Irretrievable losses to visual characteristics near mining sites would occur during development and operation.

Designating lands open for mineral resource development/leasing and permitting subjects the mineral resource to potential future development and use which would be a potential for permanent loss of non-renewable natural resource. Utilization of the mineral resource would constitute an irreversible and irretrievable commitment of non-renewable natural resources.

Development and recovery of Fluid Minerals would tend to deplete any resource that may exist within the boundaries of the lease. This would constitute an irreversible and irretrievable commitment of resource. Most, if not all, surface disturbance and Fluid Mineral development can be restored through adequate reclamation. The same is true with solid minerals, except that residual mining pits change the character of the landscape in the immediate areas. Most, if not all portions of the pits, except for rock highwalls can be reclaimed and rehabilitated to a productive

post mining land use such as wildlife habitat. Rock quarries are typically not reclaimable and these lands and the rock highwall portions of other types of mining pits would be a residual impact that is considered irreversible.

Reduction or elimination of impacts caused by mineral and energy exploration and development activities often require application of mitigation measures or implementation of an alternative plan that would result in additional cost to the applicant/lessee. Additional expenditures would typically cause operators to seek to concentrate on recovering only the most profitable portions of a mineral deposit. Less profitable portions may not be recovered and could be irretrievably lost to recovery if not developed at the same time as the more profitable portions. These resources would remain in the ground as an irretrievable loss, unavailable for use by society unless severe scarcity occurs in the future that causes the value of the bypassed mineral resource to increase in value to the point that recovery becomes profitable.

Each alternative could result in the irretrievable loss of timber or other forest products due to wildland fire, insects and disease, or harvesting. Such activities would result in the long-term loss of these resources, although they would eventually be available again; so they are not irreversible. Road construction for timber management may cause an irreversible loss in wilderness character, and special allocations that restrict commercial harvesting would cause an irretrievable commitment of the forest products resource.

Without vegetation treatments, noxious weeds or invasive species may not be reasonably eradicated, resulting in an irretrievable change in FRCC. Likewise, lands with LHC-B and LHC-C could degrade further, resulting in an irreversible loss in ecological functionality.

There would be no irretrievable or irreversible impacts on recreation resource uses if management restrictions are implemented effectively. In Alternative A, where most of the planning area remains open for OHV use, there could be an irretrievable impact on passive or wilderness experiences if OHV use continues to grow.

Undiscovered cultural resources may be affected by the alternatives. Compliance with management measures requires consultation with affected communities, the identification and evaluation of cultural resources, and adherence to procedures for resolving any adverse effects and mitigating impacts. Cultural resources are, by their nature, irreplaceable; so the alteration or elimination of any such resource, be it National Register eligible or not, represents an irreversible and an irretrievable commitment.

The exact nature and extent of any irreversible and irretrievable commitment of resources cannot be defined due to uncertainties about the location, scale, timing, and rate of implementation, as well as the relationship to other actions and the effectiveness of mitigation measures.

4.8 RELATIONSHIP OF SHORT-TERM USES OF THE ENVIRONMENT TO LONG-TERM PRODUCTIVITY

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of the human environment and the maintenance and enhancement of long-term productivity of resources. As described in the introduction to this chapter, “short term” defines those effects that are anticipated to occur while the alternative is being implemented. “Long term” defines those

effects that are anticipated to occur for an extended period after the alternative has been implemented, and the effects could last several years or more.

Regardless of which alternative is selected, management activities would result in various short-term effects, such as increased localized soil erosion, smoke and fugitive dust emissions affecting air quality, damage to vegetation and fish and wildlife habitat, and decreased visual resource quality. Surface-disturbing and disruptive activities, including minerals and energy development, dispersed recreation, livestock grazing, infrastructure development, vegetation treatments, and human use, would result in the greatest potential for impacts on long-term productivity. Management actions and BMPs minimize the effect of short-term uses and reverse changes during the long term. However, public lands are managed to foster multiple uses, and some long-term productivity impacts might occur regardless of the management approach.

CHAPTER 5 – CONSULTATION AND COORDINATION

5.1 INTRODUCTION

This chapter is a description of the public outreach and participation opportunities made available through the development of the Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) and the coordination and consultation efforts to date with tribes, government agencies, and other stakeholders. It includes a list of preparers of the document and the agencies, organizations, and individuals that received a copy of the Draft RMP/EIS for review. There have been and will continue to be many ways for the public to participate in the planning process for public lands under the jurisdiction of the Pocatello Field Office (PFO).

5.2 PUBLIC COLLABORATION AND OUTREACH

5.2.1 SCOPING PROCESS

Scoping is the term used in the Council on Environmental Quality Regulations implementing the National Environmental Policy Act of 1969 (40 Code of Federal Regulations Parts 1500 et seq.) to define the early and open process for determining the scope of issues to be addressed in the planning process. The scoping process provides an avenue to involve the public in identifying significant issues related to potential land use management actions. The process also helps identify any issues that are not significant and that can thereby be eliminated from detailed analysis. The list of stakeholders and other interested parties is also confirmed and augmented during the scoping process.

5.2.1.1 Notice of Intent

The Notice of Intent (NOI) is the legal document notifying the public of the Bureau of Land Management's (BLM) intent to initiate the planning process and to prepare an EIS for a major federal action. The NOI invites the participation of the affected and interested agencies, organizations, and members of the general public in determining the scope and significant issues to be addressed in the planning alternatives and analyzed in the EIS. The NOI for the Pocatello RMP was published in the *Federal Register* on November 14, 2001. The scoping period for receipt of public comments ended on June 30, 2003.

5.2.1.2 Press Releases

Local and regional newspapers and radio stations throughout the planning area were used to disseminate information on the Pocatello RMP scoping and planning process. The BLM prepared press releases announcing the official scoping meetings and inviting the public to provide input. The releases, mailed on May 15, May 29, and June 9, 2003, were provided to the following print and broadcast media:

NEWSPAPERS	
Associated Press, Boise	*Caribou County Sun*, Soda Springs
Idaho State Journal, Pocatello	*Idaho Statesman*, Boise
Morning News, Blackfoot	*News-Examiner*, Montpelier
Preston Citizen, Preston	*Post Register*, Idaho Falls
Power County Press, American Falls	*Shelley Pioneer*, Shelley
Sho-Ban News, Fort Hall	
TELEVISION	
KIFI Channel 8, Idaho Falls	KIDK Channel 3, Idaho Falls
KPVI Channel 6, Pocatello	
RADIO	
KICN-KLCE, Blackfoot	KVSI, Montpelier
KWIK-KPKY, Pocatello	KZBQ, Pocatello
KSEI, Pocatello	KBYI, Rexburg
KBRV-KFIS, Soda Springs	

5.2.1.3 Public Scoping Notice and Planning Criteria

The BLM prepared a public scoping letter and briefing package and mailed them to the Shoshone-Bannock Tribal Council, Land Use Policy Commission, federal, state, and local agencies, interest groups, and members of the general public on April 23, 2003. The BLM also made the scoping letter and briefing package available for public view on the Internet in April 2003.

The briefing package provided information on the public scoping process, the scheduled open house scoping meetings, and background information on the purpose and need for the planning activity and identified the need for change topics. Preliminary resource issues were identified and summarized, and preliminary planning criteria were also included. These serve as ground rules for the planning process and ensure that efforts are tailored to pertinent issues that will lead to the development of alternatives.

The notice invited the public to participate in the scoping process, to further develop issues and concerns to be addressed in the RMP based on the need for change topics, and to provide comment on the planning criteria. The mailing and e-mail addresses to send comments to were provided in both the scoping letter and briefing package. The mailing list was compiled from data kept by the PFO staff and included over 800 entries.

5.2.1.4 Scoping Meetings

The BLM held public scoping meetings in Montpelier on May 28, in Malad on May 29, in Fort Hall on June 5, in Pocatello on June 10, and in Soda Springs on June 11, 2003. The BLM provided the local media with press releases announcing the time, location, and purpose of these meetings.

The format for the scoping meetings featured informal one-on-one presentations by interdisciplinary team (IDT) members. Attendees signed a registration sheet as they entered the room, then team members escorted them to stations set up around the room, detailing need-for-change items, resource issues, planning criteria, and a proposed schedule for completing the

planning process. Geographic information system (GIS) inventory maps at stations highlighted various resources.

Attendees were encouraged to mail in written comments and questions or to fill out comment cards specific to the Pocatello RMP. Copies of the briefing package and planning criteria were also made available at the comment table.

5.2.2 PROJECT WEB SITE

The BLM maintains an interactive Web site at www.blm.gov/id/st/en/fo/pocatello/planning/pocatello_resource.html to communicate with the public, collaborators, and BLM employees on the RMP/EIS process. The official Web site went online in April 2003, providing updates and information about the revision process. Materials on the Web site include such information as notices and general news regarding the project, RMP/EIS, and meeting schedules, and documents to be reviewed and commented on. Maps showing the planning area, appropriate land status, towns, rivers, highways, and other BLM-approved features are also posted. The BLM continuously updates the Web site with information, documents, and announcements.

5.2.3 NEWSLETTERS

Newsletters are published throughout the course of the RMP/EIS process and are posted on the BLM Web site. Participants also may request to receive newsletters through e-mail. The newsletters remind the public of how they can comment and get involved and includes a calendar of events. Each edition addresses in detail issues of concern identified during the scoping process. The first newsletter was mailed in spring 2004 and addressed sagebrush ecosystems and phosphate mining and selenium release. Newsletters to county commissioners and tribal representatives are mailed, with cover letters addressed to specific individuals. A second newsletter was distributed in fall of 2004 that provided a project update.

5.3 CONSULTATION AND COORDINATION

The Pocatello RMP will provide guidance for a vast area of public land in southeastern Idaho and necessarily requires the coordination of a wide variety of organizations with interests in the area. Among those are governmental bodies that create, administer, and monitor policy for these, as well as adjacent, lands. The BLM established a coordinated effort in developing the Pocatello RMP by seeking the active participation of these parties.

The Shoshone-Bannock Tribes, United States (US) Department of Interior, Fish and Wildlife Service (USFWS), and Idaho Department of Fish and Game (IDFG) are participating agencies with whom the BLM collaborated in developing the RMP. Representatives of the tribes and agencies attended the kickoff meeting, participated in field trips in September 2003, and attended alternatives development meetings.

The following documents the BLM's consultation and coordination efforts during the preparation of this Draft RMP/EIS. Consultation is an ongoing effort throughout the entire process of developing the final RMP/EIS.

5.3.1 SHOSHONE-BANNOCK TRIBES

On May 15, 2003, before the public scoping meetings, the BLM met with the Shoshone-Bannock Tribes Land Use Commission and Resources and Wildlife staff specialists to discuss the Pocatello planning effort and to solicit input. In addition, in April 2003 the Tribal Business Council, members of the Land Use Commission, and resource staff specialists were sent individual scoping letters and briefing packages. One public scoping meeting was held on the Fort Hall Indian Reservation on June 5, 2003. Yvette Tuell and Claudeo Broncho, representatives of the Shoshone-Bannock Tribes, participated in various IDT meetings.

The BLM recognizes the Shoshone-Bannock Tribes policy statements (**Appendix S**) and continues to consider and consult on potential effects on natural resources related to the tribes' treaty rights and cultural uses.

5.3.2 FEDERAL AND STATE AGENCIES

Representatives of the USFWS and IDFG supplied comment letters during both the public scoping period and the 90-day public review period for the Draft RMP/EIS. The USFWS and IDFG also participated as members of the BLM IDT developing the Pocatello RMP.

Consultation with the USFWS is required under Section 7(c) of the Endangered Species Act of 1973 before the BLM begins any project that may affect any federally listed or endangered species or its habitat. As part of the formal consultation with the USFWS on this Proposed RMP/Final EIS, a biological assessment (BA) was provided to the USFWS on April 30, 2008 by the Pocatello Field Office Manager regarding the Utah valvata snail. In the BA, the BLM determined that the implementation of the Proposed RMP/Final EIS "may affect, but is not likely to adversely affect" the Utah valvata snail on which this consultation occurred. The USFWS concurred with the BLM's determination via memorandum dated May 20, 2008 (**Appendix T**).

On August 5, 2008 the Pocatello Field Office sent the USFWS an addendum to the original BA. The gray wolf was not included in the original BA because it had been delisted on March 28, 2008, as an experimental/non-essential population (including Idaho). The need for the addendum was a result of a Federal Court in Montana reinstating the gray wolf to the endangered species list on July 18, 2008. The addendum determined that the implementation of the Proposed RMP/Final EIS "would not jeopardize the continued existence of gray wolves." The USFWS acknowledged the BLM's determination via memorandum dated August 21, 2008 (**Appendix T**).

The Caribou-Targhee National Forest has been invited to participate in this planning process as well.

5.4 DISTRIBUTION AND AVAILABILITY OF THE DRAFT RMP/EIS

Scoping for the Draft RMP/EIS began in April 2003. The BLM prepared over 800 public scoping letters and briefing packages and mailed them to tribal governments, federal, state, and local agencies, interest groups, and members of the public whose names were compiled from data kept by the PFO. The distribution list has been updated throughout the development of the Draft RMP/EIS. The distribution list of tribal governments, agencies, organizations, and

individuals who had been a part of the Draft RMP/EIS process is available in the administrative record. In April 2005, the BLM sent a mailer to tribal governments, all agencies, organizations and individuals to determine who wished to be removed from or remain on the Draft RMP/EIS distribution list. Those responding, wishing to remain on the distribution list, received the document in the media type requested (e.g., printed summary only, entire printed document, CD with electronic files or download documents from the Internet) when the Draft RMP/EIS was released. Those wishing to download the document from the Pocatello Web site were notified by letter that it was available. The PFO maintains the distribution list for the Draft RMP/EIS, which is available on request.

The Draft RMP/EIS was published and released in January 2007. On January 6, 2007, the US Environmental Protection Agency and the BLM published an NOA in the *Federal Register*, which notified the public of the availability of the Draft RMP/EIS and solicited written public comments during the 90-calendar-day review period that ended on April 4, 2007.

The BLM issued a press release on January 4, 2007, and another on January 25, 2007, which announced the availability of the Draft RMP/EIS and that four open houses would be held. The BLM also provided instructions on how to submit public comments in the press releases.

On January 5, 2007, the Draft RMP/EIS was available for downloading from the Idaho BLM Web site at www.blm.gov/id/st/en/fo/pocatello/planning/pocatello_resource.html. On the same day, the BLM distributed paper and CD-ROM copies of the Draft RMP/EIS to approximately 365 parties, including elected officials, regulatory agencies, and members of the public. The BLM accommodated additional requests for paper or electronic copies of the Draft RMP/EIS after the initial distribution.

Open houses were held in Soda Springs, Malad City, Pocatello, and Fort Hall, Idaho, during the 90-day public review period. Each open house featured displays, maps, handouts, and interdisciplinary team resource specialists who provided information and answered questions. A total of 88 people attended the open houses.

5.5 DISTRIBUTION AND AVAILABILITY OF THE PROPOSED RMP/FINAL EIS

An NOA will be published in the *Federal Register* to notify the public of the availability of the Proposed RMP/Final EIS. The NOA will also outline protest procedures during the 30-calendar-day protest period.

The Proposed RMP/Final EIS will be available for downloading from the Idaho BLM Web site at www.blm.gov/id/st/en/fo/pocatello/planning/pocatello_resource.html. The Proposed RMP/ Final EIS will also be available for review at the PFO.

Press releases will be issued to notify the public of the Proposed RMP/Final EIS availability.

All recipients of the Draft RMP/EIS and all parties who submitted written comments on the Draft RMP/EIS will receive the Proposed RMP/Final EIS in either a hard copy or CD, or they will be able to download it from the Idaho BLM Web site. The PFO will notify those who previously received the Draft RMP/EIS electronically. The PFO maintains the distribution list for the Proposed RMP/EIS, which is available on request.

5.6 COMMENTS RECEIVED ON THE DRAFT RMP/EIS

5.6.1 METHOD OF COMMENT COLLECTION AND ANALYSIS

Methods of submitting comments included letters, facsimiles, and e-mail. Official comments that were submitted were in writing only; no verbal comments were made.

To ensure that public comments were properly registered and that none were overlooked, the BLM adopted a two-part management and tracking system. This system involved listing each author's name and then tracking all individual comments with each submission for analysis.

All submissions were made available for public review at the BLM field office in Pocatello, Idaho, unless the person who submitted the comment specifically requested confidentiality. The newsletter and comment cards made available at open houses provided instructions on requesting the confidentiality of individual respondents and how to withhold individual names or addresses from public review or from disclosure under the Freedom of Information Act.

After entering written submissions into a tracking list, the BLM read all comments and evaluated them to determine their content. Most submissions contained several individual comments pointing to one opportunity or issue; thus, it was necessary to develop a method to systematically track all individual comments received. This was accomplished through a tracking system, in which individual comments within a longer letter or comment form were numbered for tracking purposes. Individual comments were tallied and analyzed, and written submissions were registered in the administrative record.

5.6.2 SUMMARY OF WRITTEN COMMENTS RECEIVED

The comment period closed on April 4, 2007. All written comments sent before 12:00 AM on April 5, 2007, were accepted as official comments. These included those sent by US mail postmarked on April 4, 2007, and e-mail messages and facsimiles sent on April 4, 2007, regardless of when they were received. Some comments were duplicated with an electronic mail message and a letter submitted via US mail. Identical comments from the same party were considered only once.

As shown in **Table 5-1**, 52 written submissions were received, including one form e-mail sent by multiple parties (over 1,150 recorded e-mails), but they were counted only once in the totals. Most of the 52 written submissions contained multiple comments on different topics, for a total of 1,404 individual comments (**Table 5-2**). All information received through these comments has been evaluated, verified, and incorporated into the Proposed RMP/Final EIS, as appropriate. Copies of all accepted written submissions are provided in **Appendix U** (Comments Received on Pocatello Draft RMP/EIS), and the BLM's response to each separate comment within each submission appears to the right of each comment.

Table 5-1. Number of Written Submissions on the Draft RMP/EIS per Affiliation

Affiliation	Affiliation Code*	Number of Written Submissions
Federal agency	A	3
State agency	A	4
Local agency/elected official	A	3
Tribes	T	1
Interest and environmental groups	G	10
Businesses	B	2
Individuals	I, F	29
Total		**52**

*Affiliation codes: I = Individual; B = Business; A = Agency (federal, state, local, and elected officials), T = Native American tribes; G = Interest and environmental groups, F = Form letter

Table 5-2. Letter Submissions Received Sorted by Affiliation and Author Name

Number Assigned to Letters	Author Name	Affiliation	Number of Individual Comments
Agencies			
A-1	Anne Butler	Pocatello Planning and Development Services	3
A-2	Jeff Cook	Idaho State Parks and Recreation	33
A-3	Dallan Nalder	Bear River Conservation and Development Council	6
A-4	Dal Von Atkinson	Franklin County Commissioner	6
A-5	Melissa Gibbs & Christine Waite	Idaho Department of Environmental Quality	21
A-6	Sandi Arena	US Fish and Wildlife Service	6
A-7	Mark Gamblin	Idaho Department of Fish and Game	85
A-8	James Devine	US Geological Survey	8
A-9	Ron Kay	Idaho Department of Agriculture	28
A-10	Christine Reichgott	US EPA, Region X	43
Native American Tribes			
T-1	Alonzo Coby	Shoshone-Bannock Tribes	90
Interest and Environmental Groups			
G-1		Eastern Idaho Group of the Sierra Club	42
G-2	Brooks/Smith	The Wilderness Society	66
G-3	Marv Hoyt	Greater Yellowstone Coalition	78
G-4	John G. Carter, PhD	Western Watersheds Project, Inc.	122
G-5	Katie Fite	Western Watersheds Project, Inc.	163
G-6	Katie Fite and Russell Heugins	Western Watersheds Project, Inc./Idaho Wildlife Federation	135
G-7	Katie Fite	Western Watersheds Project, Inc.	175
G-8	Greg Mladenka	SIRA (Southeast Idaho Recreation Alliance)	11
G-9	Craig Shuler	SOAR (Save Our Access and Rights-of-Way)	20
G-10	Katie Fite	Western Watersheds Project, Inc.	3
Businesses			
B-1	Jeff Richards	PacifiCorp	22
B-2	Bruce Winegar	J. R. Simplot Company	2

Table 5-2. Letter Submissions Received Sorted by Affiliation and Author Name *(continued)*

Number Assigned to Letters	Author Name	Affiliation	Number of Individual Comments
Individuals			
F-1	Form letter (multiple authors)	Individual	5
I-1	B. Sachau	Individual	7
I-2	B. Sachau	Individual	13
I-3	B. Sachau	Individual	25
I-4	Lydia Garvey	Individual	1
I-5	Richard Spotts	Individual	13
I-6	Mike Veile	Individual	2
I-7	Jerald Tower	Individual	1
I-8	Anonymous	Individual	34
I-9	Sam Smith	Individual	6
I-10	Ned C. Tippets	Individual	2
I-11	Jeff Seamons	Individual	1
I-12	Dana Olson	Individual	15
I-13	Joel Gardner	Individual	2
I-14	Gail Hunt	Individual	6
I-15	Ralph Maughan	Individual	5
I-16	Bryce Campbell	Individual	3
I-17	Mike Panting	Individual	3
I-18	Cameron Williams	Individual	3
I-19	Wendy Pratt	Individual	8
I-20	Valerie Gill	Individual	1
I-21	Stephanie Gill	Individual	3
I-22	Grant Williams	Individual	1
I-23	Mark and Wendy Pratt	Pratt Livestock	7
I-24	Richard Reid & Charlotte Reid	Individual	19
I-25	Stanley Campbell	Individual	3
I-26	Geoff Hogander	Individual	42
I-27*	Geoff Hogander	Individual	0
I-28	Peggy Stalworthy and Kelly Bingham	Individual	5
		Total:	**1404**

*Not included in **Appendix U**.

Comments were received concerning a variety of resource issues, although most comments pertained to livestock grazing. **Table 5-3** is a summary of the number of comments received for each resource or resource use addressed in the Draft RMP/EIS. In addition to the comments summarized below, another 36 comments pertaining to the alternatives considered in the Draft RMP/EIS were submitted. A total of 224 other comments could not be placed into a specific resource or resource use category.

Table 5-3. Number of Comments Regarding Each Resource or Resource Use

Resource/Resource Use	Number of Individual Comments Received	Percentage of Comments*
Air quality	29	2.05%
Cultural resources	36	2.55%
Soils	11	0.78%
Paleontological resources	2	0.14%
Vegetation	139	9.84%
fish and wildlife	76	5.38%
Special status species	95	6.73%
Visual resources	2	0.14%
water resources	38	2.69%
Wildland fire management	121	8.57%
Forestry	7	0.50%
Lands and realty	73	5.17%
Livestock grazing	177	12.54%
Minerals and energy	107	7.58%
Recreation	74	5.24%
ACECs and RNAs	21	1.49%
Wilderness Study Areas	4	0.28%
Designated Watchable Wildlife Areas	0	0.00%
Wild and Scenic Rivers	0	0.00%
Socioeconomic resources and environmental Justice	25	1.77%
Native American tribal issues	16	1.13%

*Total percentage of comments received does not equal 100 percent because 260 recorded comments were not specific to a resource or resource use and therefore do not appear in this table.

5.6.3 COMMENT LETTERS AND BLM RESPONSES

Letters, e-mail messages, and facsimiles containing written comments on the Draft RMP/EIS are reprinted in the order they were coded. **Appendix U** contains comments and the BLM's responses. Each comment is outlined and coded using the letter number within each affiliation type, the affiliation type, and the comment number within the letter (e.g., 2-A-3, where the comment is the third individual comment within the second agency letter). Affiliation types include A (agency), I (individual), B (business), T (Native American tribe), F (form letter), and G (interest or environmental group). A vertical line and the comment code note each separate comment within each letter. The BLM's response to each comment is printed to the right of each comment.

5.7 LIST OF PREPARERS

An IDT of resource specialists from the BLM PFO prepared this RMP/EIS. Tetra Tech, Inc., and Maxim Technologies, Inc., a subsidiary of Tetra Tech, assisted the BLM in preparing these documents and in the planning process (**Table 5-4**). Also providing assistance were Yvette Tuell and Claudeo Broncho of the Shoshone-Bannock Tribes, Jim Mende of IDFG, Dwayne Winslow and Deb Mignogno of the USFWS, Lloyd W. Briggs of the Idaho Falls District Resource Advisory Council, and the US Department of Agriculture, Forest Service.

Table 5-4 List of Preparers

Name	Years Experience	Role/Responsibility	Education
POCATELLO FIELD OFFICE			
Candida Aguirre	16	Lands and Realty	BLM Lands and Realty Professional Development Studies
Jim Bowmer	3	Forestry, Vegetation	BS, Forest Resources
Ray Brainard	30 (Retired)	Forestry, Vegetation	BS, Forestry Management MS, Forestry
Jeff Cundick	17	Minerals, Oil and Gas, Geothermal Resources	BS, Mining Engineering MBA, Business
Cleve B. Davis	6	Special Status Species (flora), Vegetation	BS, Botany
Amy Lapp	3	Cultural Resources	MS, Anthropology, BS, Anthropology
Geoff Hogander	28 (Retired)	Fish and Wildlife, Vegetation, Air, Soils and Geology	BS, Fish and Wildlife Management
Brian Holmes	4	GIS	BS Zoology MS, Biology
James Kumm	19	Fish and Wildlife, Special Status Species (fauna), Vegetation	BS, Wildlife Biology MS, Wildlife Sciences
Becky Lazdauskas	12	Lands and Realty	BS, Natural Science
Blaine Newman	13	Recreation, Visual Resources, Special Designations	BS, Wildland Recreation Management
Paul Oakes	33 (Retired)	RMP/EIS Planning Coordinator	BA, Biology, Graduate studies in soils
Dave Pacioretty	20	Field Office Manager	BS, Rangeland Science
Matt Rendace	25	Vegetation, Livestock Grazing	BS, Range Management
Terry Lee Smith	21	RMP/EIS Project Manager, Fire Management, Socioeconomics, Cultural/Paleontology, and Vegetation	BS, Agriculture MS, Forestry and Range Management
Mitch Werner	18	Writer, Editor	BBA, Marketing/Film and Video Production
US FISH AND WILDLIFE			
Troy Smith	1	Wildlife, Special Status Species	BS, Wildlife Resources MS, Forest Science
IDAHO FISH AND GAME			
Martha Wackenhut	8	Wildlife, Special Status Species	BS, Wildlife MS, Biology/Zoology

Table 5-4. List of Preparers *(continued)*

Name	Years Experience	Role/Responsibility	Education
CONTRACTOR – TETRA TECH, INC.			
Cynthia Adornetto	24	Project Manager, Greater Sage-Grouse Analysis, QA/QC, Document Production, Administrative Record	MS, Environmental Policy and Management, University of Denver; BS, Natural Resources Management, Colorado State University
Kevin T. Doyle	18	Cultural Resources and Paleontological Resources, Tribal Treaty Rights and Interests	BA, University of California, Santa Barbara
Michael Egan*	17	Mineral Resources	BS, Geology, Montana State University
Cameo Flood	20	Forestry, Fire Management	BS, Forest Resource Management, University of Montana
Derek Holmgren	7	Lands and Realty, Visual Resources	MPA and MSES, Indiana University; BS and BA, Oregon State University
W. Wynn John*	5	Air Quality	MS, Geological Engineering, University of Utah; BS, Environmental Earth Science, University of Utah
Genevieve Kaiser	15	Socioeconomics, GIS	MS, Energy Management and Policy, University of Pennsylvania; BA, Economics, College of William and Mary; Professional Certification: GIS, University of Denver
David Kane*	18	Vegetation, Invasive Species Management, Fire Management, Livestock Grazing	PhD, Ecology and Conservation Biology, University of Denver; BS, Wildlife Ecology, University of Wyoming
Matt Loscalzo	6	QA/QC, Document Production, Administrative Record	MS, Environmental Studies, University of Colorado; BA, Political Science, Binghamton University
Neil Lynn*	6	Biological Assessment, Greater Sage-grouse Analysis, Administrative Record	BS, Wildlife Biology, Colorado State University
Mike Manka*	12	Special Status Species, Fish and Wildlife, Wilderness Study Areas, Wild and Scenic Rivers	BS, Biological Sciences, Ecology and Systematics, Cornell University
Joy McLain	9	Water Quality, Special Status Species	BS, Environmental Health/Biology minor, Boise State University
Bindi Patel*	4	Socioeconomics, Environmental Justice	MEM, Duke University; BA, Washington and Lee University
David Steed	14	Initial Assistant Project Manager	BS, Idaho State University

Table 5-4. List of Preparers *(continued)*

Name	Years Experience	Role/Responsibility	Education
Randolph Varney	16	Writer, Editor	MFA in Writing, University of San Francisco; BA, Technical and Professional Writing, San Francisco State University
Walt Vering	12	Aquatic Resources	MS, University of Wisconsin, Stevens Point; BA, Wartburg College
Valerie Waldorf*	10	GIS, Socioeconomic Support, Public Participation (newsletters)	MBA, University of Utah; BS, Westminster College
Ed Yates*	14	Compliance Oversight	JD, Law, University of San Diego School of Law; BA, Political Science, University of California, Davis
Ann Zoidis	12	QA/QC	MS, Physiology and Behavioral Biology, San Francisco University; BA, Geological Sciences, Smith College
SUBCONTRACTOR – EMPSi: ENVIRONMENTAL MANAGEMENT AND PLANNING SOLUTIONS, INC.			
Angie Adams*	13	Recreation, Administrative Designations	BA, Biology, Drake University
David Batts*	15	Project Manager, Water Resources and Soils	MS, Natural Resource Planning, Michigan State University; BS, International Development, Lewis and Clark College
Holly Prohaska*	8	Livestock Grazing	MS, Environmental Management, University of San Francisco; BA, Marine Science, Biological Pathway, University of San Diego
Kate Wynant*	3	Document Production/ Technical Review, Administrative Record	BA, Environmental Studies, University of Colorado
Jennifer Zakrowski*	10	Project Manager, Recreation and Administrative Designations	MSM, Project Management, Regis University; BS, Public Affairs, emphasis in Natural Resource Management, Indiana University

*Former employee of Tetra Tech, Inc.

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GLOSSARY

ACQUIRED LANDS. Land obtained and normally dedicated to a specific use by the United States through purchase, condemnation, gift or exchange from a State or private individual.

ACTIVITY PLAN. A document that describes management objectives, actions, and projects to implement decisions of the RMP or other planning documents. Usually prepared for one or more resources in a specific area.

ADAPTIVE MANAGEMENT. A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

ADMINISTRATIVELY UNAVAILABLE FOR FLUID MINERALS LEASING. An administrative decision to indefinitely postpone offering BLM-administered public lands in identified areas (e.g., Curlew area) for fluid minerals leasing subject to further National Environmental Policy Act analysis that demonstrates that the objectives for initially holding such public lands from lease offering can be alternatively met or no longer apply. Objectives for the identified area are to maintain and or protect important resources such as, sagebrush steppe ecosystem, sagebrush obligate species, and sensitive species habitat such as sage- and sharp-tailed grouse, leks and nesting habitat, and the globally important ferruginous hawk population/habitat. This designation effectively removes the lands from the programmatic fluid mineral leasing program considered as part of Alternative B.

AIR QUALITY CLASSES. Classifications established under the Prevention of Significant Deterioration portion of the Clean Air Act, which limits the amount of air pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be significant; Class II applies to areas where the deterioration normally accompanying moderate well-controlled growth would be insignificant; and Class III applies to areas where industrial deterioration would generally be insignificant.

ALLOTMENT. An area of land where one or more operators graze their livestock. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock and period of use are stipulated for each allotment.

ALLOTMENT MANAGEMENT PLAN (AMP). A concisely written program of livestock grazing management, including supportive measures if required, designed to attain specific, multiple-use management goals in a grazing allotment.

ALLOWED ACTIVITY. Activities in compliance with BLM rules and regulations, but no permit is required for that specific activity (e.g., individuals participating in valid activities such as personal OHV use, hunting, camping, hiking).

ALLUVIAL SOIL. A soil developing from recently deposited alluvium and exhibiting essentially no horizon development or modification of the recently deposited materials.

ALLUVIUM. Clay, silt, sand, gravel, or other rock materials transported by moving water. Deposited in comparatively recent geologic time as sorted or semi-sorted sediment in rivers, floodplains, lakes, and shores, and in fans at the base of mountain slopes.

AMBIENT AIR QUALITY. The state of the atmosphere at ground level as defined by the range of measured and/or predicted ambient concentrations of all significant pollutants for all averaging periods of interest.

AMBIENT NOISE. The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources.

ANIMAL UNIT MONTH (AUM). The amount of forage necessary to sustain one cow or its equivalent for a period of one month.

ANNUAL SALE QUANTITY (ASQ). The amount of timber the field office can offer yearly based upon forest inventory, local market conditions, and the availability of staff and funding.

APPROPRIATE MANAGEMENT RESPONSE (AMR). Any specific action suitable to meet Fire Management Unit (FMU) objectives. Typically, the AMR ranges across a spectrum of tactical options (from monitoring to intensive management actions). See Interagency Standards for Fire and Aviation Operations 2006 (http://www.fire.blm.gov/Standards/redbook.htm).

AQUATIC. Living or growing in or on the water.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area established through the planning process as provided in FLPMA where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values; or to fish and wildlife resources or other natural systems or processes; or to protect life and afford safety from natural hazards.

ATTAINMENT AREA. A geographic area in which levels of a criteria air pollutant meet the health-based National Ambient Air Quality Standard for that specific pollutant.

BENEFICIAL USE. Any of the various uses which may be made of the water of Idaho, including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use is dependent upon actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not a beneficial use (Idaho Administrative Code 58.01.02.003.08).

BEST MANAGEMENT PRACTICES (BMPS). Innovative, dynamic, and improved environmental protection practices/strategies applied to mining, forestry, oil and gas development, road construction, grazing and other land uses to ensure activities are conducted in an environmentally responsible manner.

BIOLOGICAL WEED TREATMENT. The use of natural enemies (e.g., insects, goats) to retard growth, prevent re-growth and seed formation of a target weed.

BIG GAME. Larger species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

BIODIVERSITY (BIOLOGICAL DIVERSITY). The variety of life and its processes, and the interrelationships within and among various levels of ecological organization. Conservation, protection, and restoration of biological species and genetic diversity are needed to sustain the health of existing biological systems. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

BIOLOGICAL OPINION. A document prepared by US Fish and Wildlife Service stating their opinion as to whether or not a federal action will likely jeopardize the continued existence or adversely modify the habitat of a listed threatened or endangered species.

BURNED AREA REHABILITATION. Efforts undertaken within three years of containment of a wildfire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire. (620 DM 3.4A)

CASUAL USE. Activities that ordinarily result in no or negligible disturbance of the public lands, resources, or improvements and typically do not involve the use of mechanized, earth-moving equipment. For example, activities which do not involve use of heavy equipment or explosives and which do not involve vehicular movement except over established roads and trails are casual use.

CANDIDATE SPECIES. Species designated as candidates for listing as threatened or endangered by the Fish & Wildlife Service (FWS) and/or National Marine Fisheries Service (NMFS). A list has been published in the Federal Register (BLM Manual 6840).

CHEMICAL VEGETATION TREATMENT. Application of herbicides to control invasive species/noxious weeds and/or unwanted vegetation. To meet resource objectives the preponderance of chemical treatments would be used in areas where cheatgrass or noxious weeds have invaded sagebrush steppe. In these areas, fine fuel loads are extremely high due to cheatgrass dominance of the understory. The effectiveness of chemical treatments increases if they are applied following prescribed or wildland fire.

COMMUNITY-AT-RISK. A group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) that are 1) within or adjacent to federal land, 2) have conditions conducive to a large-scale wildland fire disturbance event, and 3) have a significant threat to human life or property as a result of wildland fire disturbance event.

COMMUNITY RECREATION-TOURISM MARKET. A community or communities dependent on public lands recreation and/or related tourism use, growth, and/or development. Major investments and facilities and visitor assistance are authorized within SRMA's where BLM's strategy is to target demonstrated community recreation-tourism market demand. Here recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource and/or community setting character and by

structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

COMPETITIVE LEASE. A mineral lease issued by competitive bidding.

COUNTY WILDFIRE PROTECTION PLAN. A plan for a county within Idaho that identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment on federal and non-federal land that will protect one or more at-risk communities and essential infrastructure. The plan also recommends measures to reduce structural ignitability throughout the at-risk communities and may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection. The National Fire Plan recommends the development of Community Wildfire Protection Plans, however in Idaho these plans were completed at the county level.

CRITERIA POLLUTANT. EPA uses six "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards. The criteria pollutants are ozone, carbon monoxide, nitrogen dioxide, sulphur dioxide, particulate matter and lead.

CRUCIAL WINTER RANGE. A BLM definition that applies to elk and mule deer comprised of areas defined by Idaho Department of Fish and Game as "winter concentration areas" and "severe winter range:"

- **Winter Concentration Area:** That part of winter range where densities are at least 200 percent greater than the surrounding winter range density during the same period used to define winter range in the average five winters out of ten.

- **Severe Winter Range:** That part of the overall range where 90 percent of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten.

CUBIC FEET PER SECOND (CFS). As a rate of stream flow, a cubic foot of water passing a referenced section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

CULTURAL RESOURCES. Locations of human activity, occupation, or use. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and locations of traditional cultural or religious importance to specified social and/or cultural groups.

CULTURAL RESOURCES INVENTORY. An inventory to assess the potential presence of cultural resources. There are three classes of surveys:

- **Class I.** An existing data survey. This is an inventory of a study area to (1) provide a narrative overview of cultural resources by using existing information, and (2) compile existing cultural resources site record data on which to base the development of the BLM's site record system.

- **Class II.** A sampling field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites within a portion of an area so that an estimate can be made of the cultural resources for the entire area.

- **Class III.** An intensive field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites in an area. Upon its completion, no further cultural resources inventory work is normally needed.

CUMULATIVE EFFECTS. The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

DESIRED FUTURE CONDITION (DFC). The condition of rangeland resources on a landscape scale that meet management objectives. It is based on ecological, social, and economic considerations during the land planning process. It is usually expressed as ecological status or management status of vegetation (species composition, habitat diversity, and age and size class of species) and desired soil qualities (soil cover, erosion, and compaction).

DESIGNATED ROUTES. Specific routes (including roads and trails) identified by the BLM in Limited areas where some type of motorized vehicle use is appropriate and allowed either seasonally or yearlong.

DESTINATION RECREATION-TOURISM MARKET. National or regional recreation-tourism visitors and other constituents who value public lands as recreation-tourism destinations. Major investments in facilities and visitor assistance are authorized within SRMA's where BLM's strategy is to target demonstrated destination recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource and/or community setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

DIVERSITY. The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

EASEMENT. Right afforded 'a person or agency to make limited use of another's real property for access or other purposes.

ELIGIBLE RIVER SEGMENT. A section of a river that qualifies for inclusion into the National Wild and Scenic River System through determination that it is free-flowing and with its adjacent land area possessing at least one river-related value considered to be outstandingly remarkable.

EMERGENCY STABILIZATION. Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within one year following containment of a wildfire. (620 DM 3.3E)

ENDANGERED SPECIES. Any species which is in danger of extinction throughout all or a significant portion of its range (BLM Manual 6840).

ENVIRONMENTAL ASSESSMENT (EA). A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. It includes a brief discussion of the need for the proposal, alternatives considered, environmental impact of the proposed action and alternatives, and a list of agencies and individuals consulted.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A formal public document prepared to analyze the impacts on the environment of a proposed project or action and released for comment and review. An EIS must meet the requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the 'proposed project or action.

EXISTING ROUTES. The roads, trails, or ways that are used by motorized vehicles (jeeps, all-terrain vehicles, motorized dirt bikes, etc.), mechanized uses (mountain bikes, wheelbarrows, game carts), pedestrians (hikers), and/or equestrians (horseback riders) and are, to the best of BLM's knowledge, in existence at the time of RMP/EIS publication.

EXPERIMENTAL POPULATIONS. A population that is released separate geographically from non-experimental populations of the same species. This definition includes non-essential and essential experimental populations. Although the species of an experimental population can be listed as threatened or endangered, each member of an experimental population is generally treated as threatened (see Endangered Species Act for complete definition).

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public Law 94-579 signed by the President on October 21, 1976. Establishes public land policy for management of lands administered by the Bureau of Land Management. FLPMA specifies several 'key directions for the Bureau, 'notably (1) management be on the basis of multiple-use and sustained yield, (2) land use plans be prepared to guide management actions, (3) public lands be managed for the protection, development, and enhancement of resources, (4) public lands be retained in federal ownership, and (5) public participation be utilized in reaching management decisions.

FIRE REGIME CONDITION CLASS (FRCC). A classification of a vegetation communities variance or departure from historic fire conditions. Fire Condition Classes can be: (1) Fire Condition Class 1, representing low departure from historic fire regime; (2) Fire Condition Class 2, representing moderate departure from historic fire regime; or (3) Fire Condition Class 3, representing high departure from historic fire regime.

FOOTPRINT-ACRES. Refers to a single area or acreage within which some intervention, manipulation or treatment is/are performed.

FORAGE. All browse-and herbaceous foods that are available to grazing animals.

FRINGE LEASE. A non-competitive mineral lease for minerals that extend off from an adjacent existing lease where the minerals cannot be independently developed by anyone other than the adjacent lease owner.

GRAZING PREFERENCE. The total number of animal unit months of livestock use on public lands apportioned and attached to base property owned or controlled by a permittee. Some of the total grazing preference may have been suspended in past administrative actions. That portion of the grazing preference that is not suspended is the active grazing preference.

GRAZING SYSTEM. Scheduled grazing use and non-use of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation.

HABITAT. A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HABITAT MANAGEMENT PLAN (HMP). A 'written and approved activity plan for a geographical area which identifies habitat management activities to be implemented in achieving specific objectives of planning decisions.

HAZARDOUS MATERIAL. A substance, pollutant, or contaminant that, due to its quantity, concentration, or physical or chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment.

HERBICIDE WEED TREATMENT. The use of chemicals to control, suppress, or kill vegetation, or to severely interrupt their normal growth process. Herbicides can be applied in either liquid or solid forms.

HIGH (CLASSIFICATIONS FOR *GEOTHERMAL RESOURCE* POTENTIAL - BLM MANUAL H-1624-1). Inclusion in a Known Geothermal Resource Area; or the existence of a hydro thermal convection demonstrated by geological evidence of: a structural fault/fracture and related thermal spring activity or other thermal features (i.e., geysers, fumaroles, mud volcanoes, vents, etc.); and high subsurface temperatures measured in wells and/or from geochemical temperature indicators. Demonstrated existence is defined by physical evidence or documentation in the literature.

HIGH (CLASSIFICATIONS FOR *OIL AND GAS RESOURCE* POTENTIAL - BLM MANUAL H-1624-1). Inclusion in an oil and gas plan defined by the USGS national assessment or in the absence of a plan designated by the USGS, the demonstrated existence of source rock, thermal maturation, and reservoir strata possessing permeability and/or porosity, and traps. Demonstrated existence is defined by physical evidence or documented in literature.

IMPACT. The effect, influence, alteration, or imprint caused by an action.

IMPAIRMENT. The degree to which a distance of clear visibility is degraded by man-made pollutants.

INVASIVE PLANT. An exotic plant species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13122, 2/3/99).

INVERTEBRATE. An animal lacking a backbone or spinal column.

ISOLATED HABITAT. Areas where breeding and winter habitat remains to support relatively small sage-grouse nesting and winter population; may be isolated from stronghold sage-grouse populations by farmlands, forests, and/or grasslands.

KEY HABITAT (SAGE GROUSE). Generally large scale, intact sagebrush steppe areas that provide sage grouse habitat.

LAND HEALTH CONDITION (LHC). The presence or absence of ecological components (e.g., species diversity, vegetative structure, composition and canopy cover, hydrological functions, nutrient cycling) necessary for a healthy ecosystem.

LAND TENURE ADJUSTMENT. The transfer of land or interest in land (e.g., easement) between the United States and private individuals, entities, State or local governments.

LAND TREATMENT. All methods of artificial range improvement arid soil stabilization such as reseeding, brush control (chemical and mechanical), pitting, furrowing, water spreading, etc.

LAND USE AUTHORIZATIONS (LUA). The term Land Use Authorization includes right-of-way grants, leases and permits as provided for under Titles III and V of FLPMA. Title V gives BLM the authority to issue grants for systems or facilities over, under, on, or through public lands for transportation and utility systems, i.e., roads, transmission lines, pipelines, electronic transmission systems. Title III gives BLM the authority to issue permits or leases for any use not specifically authorized under other laws or regulations, i.e., rights-of-way, grazing permits. Use that may be authorized under Title III includes, but is not limited to: residential, agricultural, industrial, or commercial.

LEASEABLE MINERALS. Those minerals or materials designated as leaseable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium and sodium minerals, and oil and gas. Geothermal resources are also, leaseable under the Geothermal Steam Act of 1970.

LEASE MODIFICATION. Enlargement of an existing lease to include leasable minerals that extends off the existing lease. The minerals included in the lease modification must not be able to be independently developed by anyone other than the adjacent lease owner.

LEK. Areas used by sage-grouse during the mating season where males display to attract receptive females. These sites are characterized by low vegetation with sparse shrubs often surrounded by big sagebrush communities. Strutting grounds or leks are considered to be the center of sage-grouse activities.

> **Active Lek.** Any lek that has been attended by one or more male sage-grouse or sharp-tailed grouse during the breeding season.
>
> **Occupied Lek.** A lek where at least two or more male sage-grouse have attended in two or more of the previous five years.

LENTIC. Pertaining to standing water such as lakes and ponds.

LEVEL 1 TEAM: A team composed of biologists and botanists designated by their respective agencies as team members whose role is to assist land management agencies in designing programs and activities to minimize adverse impacts to listed and proposed species. This team is used in the Streamlined Consultation Procedures for Section 7 of the Endangered Species Act.

LITHIC SITE. An archaeological site containing debris left from the manufacture, use, or maintenance of flaked stone tools.

LISTED SPECIES. Species officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act (BLM Manual 6840).

LOCATABLE MINERALS. Minerals or materials subject to claim and development under the Mining Law of 1872, as amended. Generally includes metallic minerals such as gold and silver, and other materials not subject to lease or sale (some bentonites, limestone, talc, some xeolites, etc.). Whether or not a particular mineral deposit is locatable depends on such factors as quality, quantity, mineability, demand, and marketability.

LONG-TERM EFFECT. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

LOW (CLASSIFICATIONS FOR *GEOTHERMAL RESOURCE* POTENTIAL (BLM MANUAL H-1624-1). Existence of a conduction-dominated area demonstrated by geologic evidence or radiogenic heat production or geopressured environment and higher than normal geothermal gradient as documented in existing literature.

LOW (CLASSIFICATIONS FOR *OIL AND GAS RESOURCE* POTENTIAL. BLM MANUAL H-1624-1). Specific indications that one or more of the following may not be present: source rock, thermal maturation, and reservoir strata possessing permeability and/or porosity, and traps.

MAJOR SURFACE DISTURBANCE. Actions that alter landscape topography, completely denude areas of vegetation, or result in widespread exposure of mineral soil.

MANUAL WEED TREATMENT. Manual treatment involves hand operated cutting, pulling, clearing, or prune herbaceous and woody target species to enhance site conditions for desired plants. Workers in manual treatments would normally use tools such as the hand saw, axe, shovel, chain saws, power brush saws, rake, machete, grubbing hoe, mattock (combination of axe and grubbing hoe), brush hook, or hand clippers.

MECHANICAL VEGETATION TREATMENT. Includes mowing, chaining, chopping, drill seeding, and cutting vegetation to meet resource objective. Mechanical treatments generally occur in areas where fuel loads or invasive species need to be reduced prior to prescribed fire application; when fire risk to resources is too great to use naturally started wildland fires or prescribed fires; or where opportunities exist for biomass utilization or timber harvest. Examples include:

- Mountain Shrub areas adjacent to Wildland Urban Interface areas.
- Crucial wildlife habitat (e.g., sage grouse key habitat).
- Vegetation cover types in which burning would increase the likelihood of cheatgrass invasion (e.g., juniper encroachment into Mid-elevation Shrub).

- Juniper or Aspen/Conifer cover types in which the harvest or thinning of trees may be desirable.

MECHANICAL WEED TREATMENT. The use of tractors, crawler-type tractors, mowing tools, or specially designed vehicles with attached implements for mechanical vegetation treatments. Treatment types can include burial, tillage, and mowing.

MECHANIZED USES. Equipment that is mechanized, including but not limited to mountain bikes, wheelbarrows, and game carts.

MEDIUM (CLASSIFICATIONS FOR *GEOTHERMAL* RESOURCE POTENTIAL (BLM MANUAL H-1624-1). Existence of a hot igneous system demonstrated by geologic evidence of late Tertiary or Quaternary volcanism and higher than normal geothermal gradient as documented in existing literature.

MEDIUM (CLASSIFICATIONS FOR *OIL AND GAS* RESOURCE POTENTIAL - BLM MANUAL H-1624-1). Geophysical or geological indications that the following may be present: source rock, thermal maturation, and reservoir strata possessing permeability and/or porosity, and traps. Geological indications are defined by geological inference of indirect evidence.

MINERAL ENTRY. Claiming public lands (administered by the BLM) under the Mining Law of 1872 for the purpose of exploiting minerals. May also refer to mineral exploration and development under the mineral leasing laws and the Material Sale Act of 1947.

MINERAL MATERIALS. Common varieties of sand, building stone, gravel, clay, moss rock, etc., obtainable under the Minerals Act of 1947, as amended.

MINING LAW OF 1872. Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the "General Mining Laws" or "Mining Laws."

MITIGATION. Alleviation or lessening of possible adverse effects on a resource by applying appropriate protective measures or adequate scientific study. Mitigation may be achieved by avoidance, minimization, rectification, reduction, and compensation.

MOTORIZED VEHICLES OR USES. Vehicles that are motorized, including but not limited to jeeps, all-terrain vehicles (all-terrain vehicles, such as four-wheelers and three-wheelers), and trail motorcycles or dirt bikes.

MULTIPLE-USE. Management of the various surface and subsurface resources so that they are jointly utilized in the manner that will best meet the present and future needs of the public, without permanent impairment of the productivity of the land or the quality of the environment.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA). Public Law 91-190. Establishes environmental policy for the nation. Among other items, NEPA requires federal agencies to consider environmental values in decision-making processes.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP). A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the Historic Preservation Act of, 1966 and maintained by the National Park Service.

NATURALNESS. Refers to an area that "generally appears to have been affected primarily by the forces of nature, with, the imprint of man's work substantially unnoticeable" (Set 2[c] of the Wilderness Act of 1964).

NOXIOUS WEED. "Any living stage (including but not limited to, seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation or the fish and wildlife resources of the United States or the public health" (Public Law 93-629, January 3, 1975, Federal Noxious Weed Act of 1974)

NEED FOR CHANGE TOPICS. Resources and land uses initially identified by the BLM that require new management direction to address current laws, regulations and policies, or to respond to changes in conditions, such as increased recreational demand.

OFF-HIGHWAY VEHICLE (OHV). A general term referring to any motorized vehicle capable of operating on roads, trails, or designed areas that are not maintained. These include motorcycles, all-terrain vehicles, dune buggies, and four-wheel-drive vehicles.

OFF-ROAD VEHICLE DESIGNATIONS. Public lands designated for off-highway vehicle use. Lands in the planning area are designated as open, limited, or closed for OHV use.

- **Open.** Designated areas and trails where off-road vehicles may be operated (subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343). For the purposes of this RMP/EIS, an "open area" is defined as an area where all types of motorized vehicles (jeeps, all-terrain vehicles, motorized dirt bikes, etc.) and mechanized uses (mountain bikes, wheelbarrows, game carts) are allowed to travel freely at all times, anywhere in the area, on roads or cross country, subject to the operating regulations and vehicle standards set forth in 43 CFR, subparts 8341 and 8342.

- **Limited.** Designated areas and trails where the use of off-road vehicles is subject to restrictions such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use. Combinations of restrictions, such as limiting use to certain types of vehicles during certain times of the year, are possible. For the purposes of this RMP/EIS, a "limited area" is an area where motorized and mechanized travel is restricted to designated routes, unless otherwise noted. Off-road, cross-country travel is prohibited in limited areas. Some existing routes may be closed in limited areas.

- **Closed.** Designated areas and trails where the use of off-road vehicles is permanently or temporarily prohibited. Emergency use of vehicles is allowed. Use may be allowed for other reasons; however such use shall be made only with the approval of the authorized officer. For the purposes of this RMP/EIS, A "closed area" is where motorized and mechanized use is prohibited in all locations at all times.

OVERSTORY. That portion of a plant community consisting of the taller plants on the site; the forest or woodland canopy.

OZONE (O_3). One of the six "criteria" pollutants for which the EPA established National Ambient Air Quality Standards.

PALEONTOLOGICAL RESOURCES. The physical remains or other physical evidence of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for correlating and dating rock strata and for understanding past environments, environmental change, and the evolution of life.

PARTICULATE MATTER (PM). One of the six "criteria" pollutants for which the EPA established National Ambient Air Quality Standards. Particulate matter is defined as two categories, fine particulates, with an aerodynamic diameter of 10 micrometers (PM_{10}) or less, and fine particulates with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$).

PASSENGER VEHICLE. Two-wheel-drive, low-clearance vehicles.

PATENT. A grant made to an individual or group conveying fee simple tide to selected public lands.

PATENTED CLAIM. A claim on which title has passed from the federal government to the mining claimant under the Mining Law of 1872.

PERMITTED/AUTHORIZED ACTIVITY. Requires permit or signed document authorizing that specific activity (e.g., Special Recreation Permit, Right of Way, Grazing Permit, Land Use Permit, etc.).

PLANNING AREA. The geographical area for which land use and resource management plans are developed and maintained. The planning area for this RMP is approximately 613,800 acres of public lands administered by the Pocatello Field Office.

PLANNING ISSUES. Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses.

PREFERENCE RIGHT LEASE. A mineral lease issued non-competitively to a holder of a prospecting permit who has made a showing (discovery) of leasable minerals typically outside of a known leasing area.

PRESCRIBED FIRE TREATMENTS. A pre-planned, management-ignited fire designed to meet specific resource objectives, such as reducing fuel loads, preparing a site for chemical treatment or seeding, or promoting vegetation regeneration. Prescribed fires are useful for reducing fuel loads and providing or promoting vegetation regeneration. Prescribed fires can be performed anywhere that specific fire prescriptions can be met and fire risks to resources are mitigated after site-specific planning and NEPA analysis. Prescribed fires may be used to reduce undesirable species and fire hazard in Low-elevation Shrub (especially areas dominated by cheatgrass, in preparation for chemical and seeding treatments), to reduce juniper encroachment on Mid-

elevation Shrub, reduce conifer encroachment into decadent aspen stands, and rejuvenate decadent Mountain Shrub.

PRIMITIVE AND UNCONFINED RECREATION. Non-motorized and undeveloped types of outdoor recreation.

PROACTIVE MANAGEMENT. The ability of the agency to respond to changes in resource or use conditions when needed and change management direction as necessary.

PROBABLE SALE QUANTITY (PSQ). The allowable harvest levels for the various alternatives that could be maintained without decline over the long term if the schedule of harvests and regeneration were followed.

PROPER FUNCTIONING CONDITION (PFC). Riparian-wetlands function properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. The functioning condition of these areas is influenced by geomorphic features, soil, water and vegetation.

PROPOSED SPECIES. Species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior. A proposed rule has been published in the Federal Register (BLM Manual 6840).

PUBLIC LANDS. Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the BLM.

RAPTOR. Bird of prey with sharp talons and strongly curved beaks, e.g., hawks, owls, vultures, eagles.

RECLAMATION. Returning disturbed lands to a form and productivity that will be ecologically balanced and in conformity with a predetermined land management plan.

RECREATION OPPORTUNITY SPECTRUM (ROS). A land delineation system commonly used by federal land management agencies to address the need for a range of recreational opportunities within the planning area.

RECREATION USE PERMITS. Authorizations for use of developed facilities that meet the fee criteria established by the Land and Water Conservation Fund Act of 1964, as amended or subsequent authority (such as the pilot fee demonstration program). Recreation Use Permits are issued to ensure that US residents receive a fair and equitable return for the use of those facilities to help recover the cost of construction, operation, maintenance, and management of the permits.

REPORTABLE QUANTITY. The quantity of a hazardous material or substance that is considered reportable under CERCLA. Reportable quantities are 1 pound or greater, or an amount as established and listed at 40 CFR 302.4 or under section 111 of the Clean Water Act.

RESEARCH NATURAL AREA (RNA). A land management status which reserves the area for uses that are compatible with the resource of interest and research for which the area was designated.

RESOURCE MANAGEMENT PLAN (RMP). A land use plan that establishes multiple-use guidelines, and management objectives for a given planning area.

RESTORATION. The continuation of rehabilitation beyond the initial three years or the repair or replacement of major facilities damaged by the fire (620 DM 3.3 N). Restoration activities must be funded through sources other than the ES&R subactivities.

RESTORATION HABITAT. Areas that currently are or were historically sage grouse habitat that, if restored, would provide better habitat at some time in the future.

- **Restoration Type 1 (R1):** Sagebrush-limited areas with acceptable understory conditions in terms of grass species composition. Includes native and seeded perennial grass rangelands. These are important areas to protect from wildfire and encourage sagebrush establishment and retention. Inexpensive management treatments may be needed (e.g., sagebrush and/or forb seedings).

- **Restoration Type 2 (R2):** Existing sagebrush cover in these areas may or may not be adequate to meet the needs of sage grouse, but understory herbaceous conditions are poor. Undesirable plant species such as cheatgrass (*Bromus tectorum*), medusahead rye (*Taeniatherum caput-medusae*) or other exotic plants are common to dominant. Expensive management treatments are needed for restoration.

- **Restoration Type 3 (R3):** Areas where junipers are encroaching into sage grouse habitat areas. Opportunities exist for improving habitat through appropriate fire management response, prescribed fire, chemical or mechanical means.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally describes plants of all types that grow rooted in the, water table or sub-irrigation zone of streams, ponds, and springs.

RIPARIAN/AQUATIC SYSTEM. Interacting system between aquatic and terrestrial situations. Identified by a stream channel and distinctive vegetation that requires or tolerates free or unbound water.

RIPARIAN ZONE. An area one-quarter mile wide encompassing riparian and adjacent vegetation.

ROADS. Vehicle routes that have been improved and maintained by mechanical means to ensure relatively regular and continuous use. (A way maintained strictly by the passage of vehicles does not constitute a road.)

ROADLESS. Refers to the absence of roads that have been constructed and maintained by mechanical means to ensure regular and continuous use.

ROUTES. A combination of roads, trails, or ways that are used by motorized vehicles (jeeps, all-terrain vehicles, motorized dirt bikes, etc.), mechanized uses (mountain bikes, wheelbarrows, game carts), pedestrians (hikers), and/or equestrians (horseback riders).

RUTTING. The result on routes and trails that occurs when the ground is too soft to support the weight of a vehicle and rider. This usually occurs when the ground is wet and soft. Ruts collect rainwater and runoff, keeping the trail wet. Ruts channel water, leading to trail erosion.

SALINITY. Refers to the solids such as sodium chloride (table salt) and alkali metals that are dissolved in water.

SCOPING PROCESS. An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

SEEDING. Seeding is a vegetation treatment that includes the application of grass, forb, or shrub seed, either aerially or from the ground. In areas of gentle terrain, ground applications of seed are often accomplished with a rangeland drill. Seeding allows the establishment of native species or placeholder species and restoration of disturbed areas to a perennial-dominated cover type, thereby decreasing the risk of subsequent invasion by cheatgrass or other exotic annual grasses. Seeding would be used primarily as a follow-up treatment in areas where disturbance or the previously described treatments have removed exotic, annual grasses and their residue.

SENSITIVE SPECIES. Are those designated by a State Director, usually in cooperation with the State agency responsible for managing the species and State Natural Heritage Programs (Conservation Data Centers), as sensitive. They are those species that: (1) could become endangered in or extirpated from a State, or within a significant portion of its distribution; (2) are under status review by the FWS and/or NMFS; (3) are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution; (4) are undergoing significant current or predicted downward trends in population or density such that federal listed, proposed, candidate, or State listed status may become necessary; (5) typically have small and widely dispersed populations; (6) inhabit ecological refugia or other specialized or unique habitats; or (7) are State listed but which may be better conserved through application of BLM sensitive species status (BLM Manual 6840).

SHORT-TERM EFFECT. The effect occurs only during or immediately after implementation of the alternative.

SILVICULTURE. The art of producing and tending a forest. The application of knowledge of silvics in the treatment of a forest or the theory and practice of controlling forest establishment, composition, structure and growth.

SOURCE HABITATS. A subset of key habitat that support concentrated sage-grouse populations. Source habitats are also commonly referred to as populations strongholds.

SOLITUDE. The state of being alone or remote from habitations; isolation. A lonely or secluded place. Factors contributing to opportunities for solitude may include size, natural screening, topographic relief, vistas, physiographic variety, and the ability of the user to find a secluded spot.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). A public lands unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured recreation opportunities (i.e., activity, experience, and benefit opportunities). Both

land use plan decisions and subsequent implementing actions for recreation in each SRMA are geared toward a strategically identified primary market - destination, community, or undeveloped.

SPECIAL RECREATION PERMITS. Authorizations that allow for recreational uses of public lands and related waters. Issued as a means to control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Commercial Special Recreation Permits also are issued as a mechanism to provide a fair return for the commercial use of public lands.

SPECIAL STATUS SPECIES. Includes the following: proposed species, listed species (endangered and threatened), candidate species, State listed species, and sensitive species (BLM Manual 6840).

STATIONARY SOURCE. Refers to a stationary source of emissions. PSD permits are required for major new stationary sources of emissions that emit 100 tons or more per year of CO, SO2, NO2, O3, or particulate matter.

STATE LISTED SPECIES. Species listed by a State in a category implying but not limited to potential endangerment or extinction. Listing is either by legislation or regulation (BLM Manual 6840).

STRONGHOLD HABITAT. Areas where sufficiently breeding (nesting and early brood-rearing) and winter habitat remains to support sage-grouse nesting and winter populations with generally stable or increasing trends.

SUCCESSION. Change through time.

SUITABLE RIVER. A river segment found, through administrative study by an appropriate agency, to meet the criteria for designation as a component of the National Wild and Scenic Rivers system, specified in Section 4(a) of the Wild and Scenic Rivers Act.

SUPPLEMENTAL VALUES. Resources associated with wilderness that contributes to the quality of wilderness areas.

SUSTAINED YIELD. The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

SWITCHBACKS. Zig-zags on a trail up or down a hill that are designed to lessen the trail's slope and to minimize erosion.

TERRESTRIAL. Living or growing in or on the land.

THREATENED SPECIES. Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (BLM Manual 6840).

TIMBER. Standing trees, downed trees, or logs which are capable of being measured in board feet.

TOTAL DISSOLVED SOLIDS. Salt, or an aggregate of carbonates, bicarbonates, chlorides, sulfates, phosphates, and nitrates of calcium, magnesium, manganese, sodium, potassium, and other cations that form salts.

TRADITIONAL CULTURAL PROPERTIES. A cultural property that is eligible for inclusion in the National Register of Historic Places because of its association with a living community's cultural practices or beliefs that: (a) are rooted in that community's history; and (b) are important in maintaining the community's continuing cultural identity.

TRESPASS. Any unauthorized use of public lands.

UNDERSTORY. That portion of a plant community growing underneath the taller plants on the site.

UNDEVELOPED RECREATION-TOURISM MARKET. National, regional, and/or local recreation-tourism visitors, communities, or other constituents who value public lands for the distinctive kinds of dispersed recreation produced by the vast size and largely open, undeveloped character of their recreation settings. Major investments and facilities are excluded within SRMA's where BLM's strategy is to target demonstrated undeveloped recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand to sustain distinctive recreation setting characteristics; however, major investments in visitor services are authorized both to sustain those distinctive setting characteristics and to maintain visitor freedom to choose where to go and what to do - all in response to demonstrated demand for undeveloped recreation.

UNIQUE PLANT ASSOCIATIONS. Plant communities which (1) occur only in Idaho, (2) are common elsewhere but are represented by only a few occurrences in Idaho, (3) could easily be eliminated from Idaho, or (4) are considered to be in their natural state.

UTILITY CORRIDOR. Tract of land varying in width forming passageway through which various commodities such as oil, gas, and electricity are transported.

VALID EXISTING RIGHTS. Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

VEGETATION MANIPULATION. Planned alteration of vegetation communities through use of mechanical, chemical, seeding and or prescribed fire or Wildland Fire Use to achieve desired resource objectives.

VEGETATION TREATMENT METHODS. There are five types of vegetation treatments that may be used; Wildland Fire Use, Prescribed Fire Treatments, Chemical, Mechanical, and Seeding.

VEGETATION TYPE. A plant community with immediately distinguishable characteristics based upon and named after the apparent dominant plant species.

VERTEBRATE. An animal having a backbone or spinal column.

VIEWSHED. The panorama from a given viewpoint that encompasses the visual landscape, including everything visible within a 360-degree radius.

VISITOR DAY. A visitor day represents one person using BLM-managed lands for all or part of one day. For example, if one person spent one night camping on public lands, it is counted as two visitor days.

VISUAL RESOURCES. The visible physical features on a landscape, (topography, water, vegetation, animals, structures, and other features) that comprise the scenery of the area.

VISUAL RESOURCE MANAGEMENT (VRM). The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and the management actions taken to achieve the visual resource management objectives.

VISUAL RESOURCE MANAGEMENT CLASSES. VRM classes identify the degree of acceptable visual change within a characteristic landscape. A classification is assigned to public lands based on the guidelines established for scenic quality, visual sensitivity, and visibility.

- **VRM Class I.** This classification preserves the existing characteristic landscape and allows for natural ecological changes only. Includes Congressionally authorized areas (wilderness) and areas approved through the RMP where landscape modification activities should be restricted.

- **VRM Class II.** This classification retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities should be low and not evident.

- **VRM Class III.** This classification partially retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities may be moderate and -evident.

- **VRM Class IV.** This classification provides for major modifications of the characteristic landscape. The level of change in the basic landscape elements due to management activities can be high. Such activities may dominate the landscape and be the major focus of viewer attention.

- **VRM Class V.** This classification applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed. Generally considered an interim short-term classification until rehabilitation or enhancement is completed.

VISUAL SENSITIVITY. Visual sensitivity levels are a measure of public concern for scenic quality and existing or proposed visual change.

WATERSHED. Topographical region or area delineated by water draining to a particular watercourse or body of water.

WATERWAY. Any body of water including lakes, rivers, streams, and ponds whether or not they contain aquatic life.

WATCH SPECIES (SPECIES OF CONCERN). Species not considered BLM sensitive species and associated sensitive species policy guidance does not apply. Watch list species include species that may be added to the sensitive species list depending on new information concerning threats,

species biology or statewide trends. The Watch List includes species with insufficient data on population or habitat trends or the threats are poorly understood. However, there are indications that these species may warrant special status species designation and appropriate inventory or research efforts should be a management priority (Instruction Memorandum No. ID-2003-057).

WILDERNESS. An area formally designated by Congress as a part of the National Wilderness Preservation System.

WILDERNESS CHARACTERISTICS. Identified by Congress in the Wilderness Act of 1964, namely, size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features.

WILDLAND FIRE. Any wildland fire that requires a suppression response. A prescribed burn may be declared a wildfire if part of it escapes from the control line or if weather conditions deteriorate and become unacceptable, as described in the burning plan.

WILDLAND FIRE USE (WFU). A pre-planned vegetation treatment that involves taking advantage of a naturally-ignited wildland fire in an area where fire would benefit resources. WFU would be conducted in specific areas needing treatment after a site-specific plan and NEPA analysis are completed and only if predetermined prescriptive parameters (e.g., weather/fire behavior) can be met. Until this planning and NEPA analysis are accomplished, wildland fires would be suppressed using an appropriate management response.

WILDLAND URBAN INTERFACE (WUI): The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

WINTER RANGE. An Idaho Department of Fish and Game definition that applies to elk and mule deer. That part of the overall range where 90 percent of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site-specific period of winter.

WITHDRAWAL. An action that restricts the use of public land and segregates the land from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management of public lands to other federal agencies.

WOODLANDS. Plant communities in which trees, often small and characteristically short-bowled relative to their depths of crown, are present but form only an open canopy, the intervening areas being occupied by lower vegetation, commonly grass. Woodland forests contain major and minor forest products (or any wood fiber) that have, or may have, merchantability.

ZONE I - OCCUPIED NEST AREA. Refers to the area within a 1,300 foot radius of an occupied Bald eagle nest.

ZONE II - PRIMARY USE AREA. Refers to the area within a 2,600 foot radius of the active Bald eagle nest and all known alternate nests.

ZONE III - HOME RANGE. Refers to the area of all potential foraging habitats within a 2.5 mile radius of the occupied Bald eagle nest.

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