

Baker Field Office

Draft Resource Management Plan and Environmental Impact Statement

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

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CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

A. INTRODUCTION

This chapter describes the environmental consequences of implementing any of the six planning alternatives and one sub-alternative described in Chapter 2, including the No Action Alternative and the Preferred Alternative. It examines the potential impacts of the decisions that would be made under each resource program on each of the resources, resource uses, special management areas (SMAs), and social and economic conditions described in Chapter 3. Impacts were analyzed with the mitigation measures and best management practices (BMPs) outlined in Chapter 2 (within the alternative decision tables) in place. Additional mitigation measures that could reduce or prevent major, adverse impacts identified during the impact analysis are also included in this chapter and in the appendices. A summary of impacts can be found at the end of Chapter 2.

1. ANALYTICAL ASSUMPTIONS AND GUIDELINES

Several general assumptions and projections were used to guide and direct the analysis of environmental impacts. The assumptions listed below are common to all alternatives. More detailed assumptions specific to a particular resource, resource use, special designation, or social and economic condition are presented under that resource management program.

- The Bureau of Land Management (BLM) would have sufficient funding and personnel to implement any of the alternatives as described in Chapter 2.
- Funding would be the same across alternatives.
- Research would continue, dependent upon sufficient funding.
- Management of public lands by the Baker Field Office (Baker FO) would be consistent with existing laws, regulations, policies, and guidelines.
- The planning period for the analysis is the next 15 to 20 years.
- Recreation use in the Planning Area would continue to increase.
- Livestock grazing would continue to be governed by applicable laws and regulations.
- Specific actions to protect human life would be taken regardless of the management criteria in the plan alternatives.
- 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 are limited.
- Changes in BLM policies have been made since the current land-use plans (management framework plans) were approved, including the Standards of Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997). These standards and guidelines are included as a part of this document (Appendix 3.6), and, as such, they apply to all programs.
- Roads would be designed, constructed, and maintained to allow attainment of resource objectives. Due to a limited inventory, the transportation system is not specifically

analyzed in this Environmental Impact Statement (EIS). Following completion of this plan, an interdisciplinary team will develop a travel management plan (TMP) that identifies needs and objectives for each road in the Planning Area. The BLM's goal is to complete the plan within six years of signing of the Record of Decision (ROD) and identify roads to be rehabilitated, closed, or abandoned to meet resource objectives.

2. INCOMPLETE OR UNAVAILABLE INFORMATION

As mandated by 43 Code of Federal Regulations (CFR) 1502.22, agencies evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS must identify incomplete or unavailable information, if that information is essential to a reasoned choice among alternatives. This Draft Resource Management Plan (RMP)/EIS is based on the best available data for each impact topic. However, there are few detailed resource surveys and inventories for the Planning Area, limiting the amount of available data necessary for in-depth impact analysis. For example, most of the Planning Area has not been surveyed for cultural or paleontological resources, while water quality and visitor use information is very limited. In absence of such data, the best professional judgment of BLM resource specialists and staff working in the Planning Area was used in the impact analysis.

3. TYPES OF IMPACTS

This chapter describes the direct, indirect, and cumulative impacts of implementing the No Action Alternative and each of the five action alternatives (including one sub-alternative). Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by the action and occur later or farther away but are still reasonably foreseeable. Cumulative impacts are the effects on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative impacts are briefly described at the end of the analysis for the resource, resource uses, special designations, and social and economic concerns sections, while a more detailed discussion is provided at the end of this chapter.

Impacts are also described as to their context, intensity, and duration. Context generally refers to the geographic extent of impact (localized or widespread). Impact intensity is the magnitude or degree to which a resource would be beneficially or adversely affected. The criteria used to rate the intensity/magnitude of the impact for each impact topic are presented later in this section under each resource, resource use, special destination and social and economic heading. Impact duration refers to how long an impact would last. For the purposes of this Draft RMP/EIS, the planning team considered impacts as either short-term or long-term to describe the duration of the impacts. Unless otherwise stated for any particular resource management program, short-term impacts would occur within five years of implementing the RMP, often during the construction and recovery phases of implementing a management action, while long-term impacts would occur outside this five-year timeframe.

B. IMPACTS TO RESOURCES

1. CLIMATE

Management activities that can contribute to the phenomena of climate change include those that emit greenhouse gasses (GHGs; especially carbon dioxide [CO₂] and methane), such as activities that involve fossil fuel use, prescribed fires, and livestock grazing. Vegetation manipulation projects proposed under the alternatives, livestock grazing, forest management, and wildfire headings are the main management actions that could contribute to climate change in the Planning Area, albeit in a very small way.

a. Indicators, Methods, and Assumptions

Climate Indicators

Primary climate change indicators that can be monitored include: ambient air temperature, precipitation amounts and timing, annual snow pack levels, and stream flow volume and timing.

Climate Methods and Assumptions

Long-term government weather stations and various other monitoring sites located within or near the Planning Area can be accessed for information. These include locations, associated data, and other information provided by federal agencies such as the National Oceanic and Atmospheric Administration and U.S. Geological Survey (USGS), and state agencies including the Oregon Water Resources Department and Department of Environmental Quality (ODEQ). Periodic reports from other agencies would be used to update this RMP when new information indicates a need to readdress climate related issues.

This impact analysis was made based upon the following:

- The USGS, in a May 14, 2008 memorandum to the U.S. Fish and Wildlife Service (USFWS), summarized the latest science on GHG emissions and concluded that it is currently beyond the scope of existing science to identify a specific source of GHG emissions or sequestration and designate it as the cause of specific climate impacts at a specific location. Therefore, this analysis cannot link any particular emission of GHGs resulting from implementation of the RMP to any specific future change in climate.
- Emission of GHGs from most proposed BLM actions would be very small in the context of broader spatial scale emissions. The duration of most BLM actions would be shorter than predicted changes in climate conditions.
- Calculations used to figure tons or metric tons of carbon or CO₂ or CO₂ equivalents were based on the following assumptions:
 - Estimated biomass tonnage for various vegetation treatments and timber production and harvest were based on local BLM data.
 - 0.5 tons of carbon per ton of biomass.

- 3.7 tons of CO₂ per ton of carbon.
- Board feet of harvested wood was converted to carbon mass by the factor for soft wood lumber of 1 thousand board feet (MBF) = 0.488 tons or 0.443 metric tons of carbon (Smith et al. 2006).
- An average figure of 8 kilograms of methane per animal unit month (AUM) (Environmental Protection Agency [EPA] 2009).
- Methane has a global warming potential 21 times that of CO₂, which was used to calculate its CO₂ equivalent (EPA 2009).

Magnitude of Impacts to Climate

Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance.

- Negligible:* Production of GHG that is directly or indirectly associated with management actions would contribute less than one-half of 1 percent of the total GHG production for the Planning Area.
- Minor:* Production of GHG that is directly or indirectly associated with management actions would contribute one-half of 1 percent to 1 percent of the total GHG production for the Planning Area.
- Moderate:* Production of GHG that is directly or indirectly associated with management actions would contribute 1 to 5 percent of the total GHG production for the Planning Area.
- Major:* Production of GHG that is directly or indirectly associated with management actions would contribute more than 5 percent of the total GHG production for the Planning Area.

Impacts are also usually described in terms of duration, which are defined as follows:

- Short-term:* Anticipated effects occur during implementation of the management action and would last from a few hours to a few weeks.
- Moderate-term:* Anticipated effects last from more than a few weeks up to a year.
- Long-term:* Anticipated effects are continuous for over a year or occur after five years.

For this analysis, the intensity of GHG emissions from public lands is compared to known sources within the Planning Area. An accurate estimate for all sources within the Planning Area is not available. This approach may tend to exaggerate the importance of GHG emissions in the Planning Area because there are so few sources. Anything that would be considered a major source in Northeast Oregon would be a negligible source in many other locations in the country; and the effect of GHGs on climate change is the same regardless of where these gases originate.

For comparison however, the 2005 (latest year available) Oregon statewide gross emissions from various sources in the state were equivalent to approximately 70 million metric tons according to

the Oregon Department of Energy (ODOE 2008). Total annual emissions from major industrial sources within the five Oregon counties within the Planning Area are estimated to be 7,635,620 metric tons equivalent by ODEQ (2009).

Given that GHGs soon dissipate over a project site and move away from the Planning Area, and that the primary gas of concern, CO₂, can last from 50 to 200 years in the atmosphere after being emitted (even though a certain amount of this CO₂ will be recaptured during photosynthesis by vegetation and other natural processes), the above descriptions have limited value in discussing GHG emissions. Technically, it also makes all long-term emissions global, even if the short-term, local effects are negligible.

b. Impacts to Climate

Sources of GHGs in the Planning Area would result primarily from actions in the Decision Area proposed under the following resource management programs:

- Vegetative Communities
- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Recreation
- Travel and Transportation

Impacts discussed in this chapter are limited to those from the resource management programs listed above as management actions proposed under at least one alternative for these programs could have more than a negligible impact. Other BLM resource management programs can contribute to climate change; however, their contribution to the Planning Area's total GHG emissions would be so small that impacts would be considered negligible or not even detectable. Due to the nature of GHG emissions into the atmosphere, it is impossible to link a specific GHG emission and a specific climate change indicator, as discussed above. Short- and moderate-term direct and indirect impacts to climate from any of the alternatives would be negligible in nature. Long-term, cumulative GHG emissions from certain actions on public lands and other sources within the Planning Area do contribute to total global emissions. These, in turn, could contribute to future long-term, anticipated climate changes to a very minor degree. Overall, the contribution would be a very small portion of the total from other sources of a regional and global nature.

Table 4-1 provides an estimate for the annual average CO₂ metric tons equivalent produced per year under each alternative due to fire and fuels, forestry, and grazing management actions. These numbers are used below in the impact analysis. Accurate information is not available to make estimations for the other resource programs listed above.

Program	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5/ Alternative 5a
Fuels*	8,000	20,000	19,000	19,500	30,500	12,500
Forestry	1,808	535	1,262	535	640	184
Grazing	9,240	6,930	7,854	6,006	5,082	4,620/0
Total	19,048	27,465	28,116	26,041	36,222	17,304/12,684

*Does not include wild fire

The EPA has new regulations that require mandatory reporting of GHGs if production exceeds 25,000 metric tons of CO₂ equivalent per year for certain industrial and intensive agricultural activities (40 CFR 98.2; 74 FR 56374). It is important to note that this new EPA reporting requirement does not apply to any of the actions proposed in this Draft RMP/EIS and is only shown here to give a sense of scope and scale to potential impacts. Therefore, this is given for the purpose of comparison only. Twenty-five thousand metric tons represents approximately 0.0000041 of 1 percent of annual national emissions, which is estimated to be six billion metric tons (EPA 2009, p. 2-3). The BLM expects that no individual action proposed under the five alternatives and one sub-alternative would exceed 25,000 metric tons a year, except for total acres burned with prescribed fire in some years under the Fire and Fuels Management program, depending on the alternative. In addition, a severe wildfire season would have the potential to exceed this figure. Approximately 25,000 acres of sagebrush steppe or 650 acres of heavy dense forest and/or juniper woodland would need to burn in any given fire season before this level of emissions would occur.

No Action Alternative

Impacts from Vegetative Communities

In general, proposed management actions, such as grass seeding and noxious weed treatments may cause indirect effects on GHG levels by making changes in vegetation that may result in net GHG emissions or net storage of carbon. Under the No Action Alternative, vegetative management activities could result in small temporary increases in GHG emissions, but at negligible levels. Long-term impacts would involve either no discernable net change in emissions or a small increase in net carbon sequestration as vegetative resource conditions and ecological processes improve over the life of the RMP.

The use of equipment during disking, drilling, spraying, and other mechanical treatments would involve some release of exhaust emissions including CO₂ and other GHGs. Under the No Action Alternative, there would be no further grass seeding with the use of drills. The emission of GHGs resulting from noxious weed spraying, possible mowing of some grass or shrub sites, or other mechanical treatments would be negligible, resulting in well below 1 per cent of the total emissions for the Planning Area. Long-term impact would also be negligible.

Impacts from Fire and Fuels Management

Vegetation manipulation projects such as prescribed fire as well as wildfire suppression activities in the Decision Area would release CO₂ and other GHGs at the time of the action. Under the No Action Alternative, approximately 450 acres a year, the least among the alternatives, are proposed for the management of prescribed fire during the life of the RMP to achieve specific resource objectives. This would result in an estimated average of 8,000 metric tons of CO₂ and other GHG releases per year, which is based on the assumption that an estimated 250 acres of rangeland and 200 acres of forest or juniper woodland would be burned each year on average. Local, adverse impacts would be due to smoke and reduced plant life but would be short-term and negligible. Ordinarily, less carbon is released during a prescribed burn than during a more severe wildfire on the same site, especially in forested areas. Impacts in the long term would be beneficial due to expected reductions in future wildfires, which would result in a net increase in carbon storage. Prescribed burning would also tend to extend the fire return interval and reduce the intensity of the next wildfire, allowing for additional carbon storage over time.

Treating 9,000 acres during the life of the RMP under Alternative 1 may not be sufficient to prevent catastrophic large fires in the long term because such treatments would cover only approximately 10 percent of the vegetation communities most at risk and only 2 percent of the Decision Area. A large wildfire or active fire season with multiple fires in any given year could result in short-term local impacts due to the amount of CO₂, carbon monoxide, and methane emitted into the atmosphere at the time of the fires; however, the amount of GHGs emitted would be negligible.

Impacts from Forestry and Woodland Products

The average annual removal of 2.4 million board feet (MMBF) of timber under the No Action Alternative would remove approximately 3,182 metric tons of carbon from the Decision Area. This assumes an average removal of 3.3 to 8 MBF feet per acre by various forest health treatments on 300 to 730 acres per year, depending on forest sites and stocking levels. In the short term, 444 tons of this carbon could be emitted through timber harvest and site preparation, which would equal approximately 1,643 metric tons of CO₂ emitted. In the long term (20 years from the original year of treatment), an additional 297 metric tons could be emitted, which would equal 1,099 metric tons of CO₂ total, or an average of 55 tons of CO₂ a year (actual emission rates would vary over the 20 year period). In addition, total equipment fuel use for timber operations would contribute approximately 29 metric tons of carbon or 110 metric tons of CO₂ per year. In the long term, this would equal 2,200 metric tons over the 20 period of this RMP. When added together, timber harvesting under the No Action Alternative would result in the emission of 1,808 tons of CO₂ per year on average. This would contribute considerably less than one-half of one percent of the total GHG production from all sources within the Planning Area, resulting in negligible, short-term impacts.

Commercial thinning and light harvest levels would help maintain the forest stand. Even with some limited clear cutting and shelterwood cuts, changes in carbon storage in the soil, understory vegetation, forest floor litter, and the like would not change to any significant degree.

Continued forest growth after harvest or treatments would result in an annual increase of approximately 190 board feet per acre or 25 metric tons of carbon per 100 acres per year. Since the actual number of acres affected in any given year under this alternative varies widely, carbon storage during the next 20 years could range from 75 to 182 tons a year on treated acres, or 1,500 to 3,640 tons in total. This equates to 5,550 to 13,468 metric tons of CO₂ sequestered over the long term and exceeds the CO₂ released at the time of harvest, resulting in a net sequestration on treated acres. Thus, while commercial thinning, harvest, and site preparation projects proposed under the No Action Alternative would result in short-term, adverse impacts due to CO₂ emissions, the forest growth that follows would result in net carbon storage on the site of approximately 3,151 metric tons over the long term after 20 years from the year of harvest or treatment. This is in addition to the initial 2,738 (3,182-444) metric tons of carbon stored as lumber or other product after harvest. The long-term impact would be beneficial in terms of total sequestration of carbon.

Impacts from Livestock Grazing

Under the No Action Alternative, approximately 55,000 active AUMs of grazing would be authorized each year. This is approximately two percent of the livestock forage consumed annually from all lands within the Planning Area. Assuming an average production of 8 kilograms of methane gas per AUM equals 0.168 metric tons of CO₂ per AUM, this level of grazing would result in 9,240 metric tons of CO₂ equivalent emitted each year from livestock use in the Decision Area.

Livestock grazing can affect rangeland carbon levels through changes in plant communities and ecosystem processes, but the effects have been variable and inconsistent among the ecosystems studied (Derner and Schuman 2007). Some studies have found that grazing can result in increased carbon storage compared to no grazing due to increased plant turnover and changes in plant species composition (Follett et al. 2001). Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but are redistributions of carbon, such as from above-ground vegetation to root biomass (Derner and Schuman 2007). Overall, changes in rangeland carbon storage caused by changes in grazing practices are likely to be small and difficult to predict, especially where a rangeland health assessment has determined that rangeland health standards are being met. Therefore, this analysis assumes that changes in grazing practices would only result in negligible, if any, change in total carbon storage in both the short and long term.

Impacts from Recreation

An estimated 500,000 visitor days occur each year on public lands within the Planning Area; however, no data are available to estimate the amount of miles or hours of use that occur on

public lands. Therefore, it is not possible to calculate accurately the current level of GHG emissions associated with the estimated number of visitor days.

Impacts from Travel and Transportation

The current transportation system through the Decision Area includes 48 miles of highways, 1,006 miles of roads (mostly unpaved), and 97 identified miles of trails, which make up only 3 percent of all roads and trails in the Planning Area. Motorized vehicle travel on roads and trails in the Decision Area would result in continued GHG emissions from fuel combustion. Most BLM managed roads and trails receive very little if any use for 3 or 4 months in the winter and only light intermittent use the rest of the year. Travel on these roads and trails primarily consists of traffic that is just passing through and the contribution of GHG emissions from travel across public lands would be negligible compared to total emissions for the Planning Area and region.

Alternative 1

Impacts Same as under the No Action Alternative

- Impacts from Recreation.

Impacts from Vegetative Communities

Compared to the No Action Alternative, where seeding is not proposed, approximately 1,500 to 2,000 acres would be seeded on non-native annual grassland sites over the life of this RMP. With no specific yearly acreage figures by project, it is difficult to estimate possible quantitative effects. Short-term effects from exhaust produced by the equipment used while implementing the seeding would result in small temporary increases in GHG emissions, but at negligible levels. In the long term, no discernable net change in emissions would be expected. Once these seedings are established, a small increase in carbon sequestration would occur as vegetative resource conditions and ecological processes improve over the life of the RMP, although it is not possible to accurately estimate the actual increase in carbon storage over the next 20 years due to the conversion of annual grass stands to perennial species. Other effects would be similar to those described under the No Action Alternative and would be negligible.

Impacts from Fire and Fuels Management

The types of impacts from fire and fuels management would be similar to those discussed under the No Action Alternative, albeit the magnitude of impact would differ. Under Alternative 1, over six times more acreage is proposed for the management of prescribed fire and use of wildland fire than under the No Action Alternative. While such acreage increases under Alternative 1 may or may not result in an increase in carbon release from vegetation treatments in any given year in the short term compared to the No Action Alternative, there would be the potential for CO₂ emissions in some years to be as high as 20,000 metric tons or more from prescribed burning alone. Although the potential long-term changes would be difficult to

estimate due to multiple variables and uncertainties in any given fire season, it can be assumed that beneficial impacts would increase in the long term due to a decrease the intensity and duration of future wildfires from reduced fuel loads, which would result in a reduced amount of potential emissions on the lands treated.

In addition to the use of prescribed fire and managed wildfire, Alternative 1 also proposes nearly nine times the acreage of mechanical, chemical, or cultural fuels management techniques to meet management objectives compared to the No Action Alternative. Even with the additional acres being treated with these methods, such management activities would still result in only small, short-term, negligible increases in GHG emissions. In the long term, there would be either no discernable net change in emissions or a small increase in net carbon sequestration as vegetative resource conditions and ecological processes improve over the life of the RMP, which would decrease the intensity and duration of wildfires on the treated lands in the future.

Impacts from Forestry and Woodland Products

Under Alternative 1, the goal of forest management would shift from timber harvesting to managing for health and long-term productivity. Treatments under Alternative 1 would affect approximately 500 acres per year and the estimated proposed sale quantity (PSQ) range would be 0.5 to 1 MMBF harvested each year, including pre-commercial and commercial thinning projects. This would result in 368 to 701 metric tons of CO₂ emissions a year, which would be 21 to 40 percent of those estimated under the No Action Alternative, thus reducing the intensity of short-term, adverse impacts.

Positive impacts from commercial thinning and harvest levels in terms of carbon sequestered would be similar to those described under the No Action Alternative, or about 125 metric tons of carbon per year on the 500 acres treated. As discussed under the No Action Alternative, the net changes in carbon storage in the soil, understory vegetation, forest floor litter, and the like would not change to any significant degree. Both short- and long-term impacts would remain negligible.

Impacts from Livestock Grazing

Reducing livestock use on public lands under Alternative 1 by 25 percent (once fully implemented) compared to the No Action Alternative would result in a reduction of 2,310 metric tons of CO₂ equivalent emitted each year. The difference in magnitude of impacts, however, would be negligible. Impacts to rangeland carbon levels due to grazing practices would be the same as identified under the No Action Alternative.

Impacts from Travel and Transportation

Impacts would be similar to those described under the No Action Alternative. Although approximately 19 percent of the Decision Area would be closed to motorized use under Alternative 1, such a reduction would be negligible and, in fact, may not actually affect the

amount of motorized use as such use may simply shift to other parts of the Decision Area that remain open to such use.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Recreation

Impacts from Vegetative Communities

Impacts would be similar to those described under Alternative 1, as the change in impacts from 500 fewer acres proposed for seeding would not be detectable at the national level.

Impacts from Fire and Fuels Management

Impacts would be similar to those described under Alternative 1, except that the intensity of short-term, adverse impacts would slightly decrease because prescribed fire would be used as a management tool on 1,000 fewer acres per year under Alternative 2, with the use of wildfire not being an option. While such acreage reduction may or may not result in a decrease in carbon release from prescribed burning in any given year compared to Alternative 1 because it would be dependent on the fuel types and fuel loadings burned each year, in some years CO₂ emissions could be as high as 19,000 metric tons in the short term. This would be 1,000 tons less than produced under Alternative 1, but 11,500 more tons than expected under the No Action Alternative. Impacts would remain negligible.

Adverse impacts from using other fuels treatment methods would increase compared to Alternative 1 due to 2,000 more acres per year being treated. These management activities would result in short-term, negligible increases in GHG emissions. In the long term, there would be either no discernable net change in emissions or a small increase in net carbon sequestration as vegetative resource conditions and ecological processes improve over the life of the RMP.

Long-term, beneficial impacts should be more intense as the added treatment efforts would decrease the intensity and duration of wildfires in the future due to the reduced fuel loadings, the lowered consumption level, and the expected lower CO₂ emissions. While the potential long-term changes would be hard to estimate since there are so many variables and uncertainties in any given fire season, differences in short-term, adverse and long-term, beneficial impacts from these other treatment methods would remain non-detectable or negligible.

Impacts from Forestry and Woodland Products

Impacts would be similar to those described under the No Action Alternative, although the magnitude of impacts would differ slightly due to the amount of timber harvested and treated. Treatments under Alternative 2 would affect approximately 500 acres per year, with the PSQ

range of 1 to 2.5 MMBF harvested each year. Resultant CO₂ emissions would range from 40 percent of the No Action Alternative to 104 percent over the No Action Alternative, or 701 to 1,823 metric tons a year. The intensity of adverse, short-term impacts would thus either be reduced compared to the No Action Alternative, or slightly increased, although overall impacts would remain negligible.

Long-term impacts from commercial thinning and harvest levels in the form of carbon sequestered would be similar to those described under the No Action Alternative. The amount of carbon sequestered would be approximately the same described in Alternative 1, or 125 metric tons per year. Impacts would remain negligible.

Impacts from Livestock Grazing

Grazing management under Alternative 2 would reduce livestock use on public lands by 15 percent compared to the No Action Alternative, which in turn would reduce methane gas production by 1,386 metric tons of CO₂ equivalent of methane emitted each year. The difference in magnitude of impacts, however, would be negligible. Impacts to rangeland carbon levels due to grazing practices would be the same as identified under the No Action Alternative.

Impacts from Travel and Transportation

Even with 9 percent of the Decision Area closed to vehicle use compared to 19 percent in Alternative 1, impacts would be similar to those described under the No Action Alternative and Alternative 1. This would not likely have any measurable impact on GHG emissions.

Alternative 3

Impacts Same as under Alternative 1

- Impacts from Forest and Woodland Products

Impacts from Vegetative Communities

Although one-half to three-quarters fewer acres would be seeded under Alternative 3, impacts would be similar to those described under Alternative 1, as the change in impacts would not be detectable and overall impacts would remain negligible.

Impacts from Fire and Fuels Management

Impacts would be similar to those described under Alternative 1, although there would be slight reductions in impacts due to fewer acres of fuel treatments per year; however, differences in impacts would not be detectable in both the long and short term. Overall, there would be 500 fewer tons of GHG emissions in the short term compared to Alternative 1.

Impacts from Livestock Grazing

Grazing management under Alternative 3 would reduce livestock use on public lands by 35 percent compared to the No Action Alternative, which would reduce methane gas production from public lands by 3,234 metric tons of CO₂ equivalent emitted each year. The difference in the magnitude of impacts, however, would remain negligible. Impacts to rangeland carbon levels due to grazing practices would be the same as identified under the No Action Alternative.

Impacts from Recreation

Due to the recreation emphasis under Alternative 3, it is anticipated that there would be an increase in the use of recreational vehicles and other equipment using gas or diesel fuels. This would result in a negligible increase in CO₂ and other GHGs compared to the No Action Alternative.

Impacts from Travel and Transportation

Impacts would be very similar to those described under Alternative 1, with 18 percent of the Decision Area closed to vehicle use compared to 19 percent. It would be unlikely that this option would have any measurable impact.

Alternative 4

Impacts Same as under the No Action Alternative

- Impacts from Recreation

Impacts from Vegetative Communities

Although under Alternative 4 the amount of acres seeded could double over the life of this RMP, impacts would be similar to those described under Alternative 1. Both the expected temporary short-term increase in GHG production and the long-term net increase in carbon storage would be negligible.

Impacts from Fire and Fuels Management

Impacts would be the similar to those described under Alternative 1, except that the intensity of short-term, adverse impacts would increase because fire would be used as a managed tool on 2,000 more acres per year under Alternative 4. Adverse impacts from using other fuel treatment methods would also increase compared to Alternative 1 due to 2,000 more acres per year being treated. Alternative 4 would result in the most acres treated using all methods and would produce the largest amount of GHG emissions from prescribed burning (30,500 metric tons) in the short term. It is assumed that less intense wildfires would occur over time due to these treatments, and that this would result in reduced emissions when those wildfires did occur.

Overall, both the adverse, short-term impacts and the beneficial, long-term impacts would remain negligible.

Impacts from Forestry and Woodland Products

Even though annual acres proposed for treatment under Alternative 4 are half as much as under Alternatives 1 through 3, the adverse short-term effects would fall between the range analyzed under Alternatives 1 and 2, with approximately 368 to 912 metric tons of CO₂ released each year.

Impacts from timber harvested and treated would be similar to those described under the No Action Alternative, although the magnitude of impacts would differ slightly as the resultant CO₂ emissions would range from 21 to 52 percent of the No Action Alternative, or 368 to 912 metric tons a year.

Long-term impacts from commercial thinning and harvest levels in the form of carbon sequestered would be similar to those described under the No Action Alternative. The net change in carbon storage in the soil, understory vegetation, and forest floor litter between these alternatives would not change considerably and impacts would remain negligible.

Impacts from Livestock Grazing

Grazing management under Alternative 4 would reduce livestock use on public lands by 45 percent compared to the No Action Alternative, which would reduce methane gas production from public lands by 4,158 metric tons of CO₂ equivalent emitted each year. The difference in the magnitude of impacts, however, would be negligible. Impacts to rangeland carbon levels due to grazing practices would be the same as identified under the No Action Alternative.

Impacts from Travel and Transportation

Impacts would be similar to those described under Alternative 1, with the 31 percent of the Decision Area closed to vehicle use not likely to have any measurable impact.

Alternative 5

Impacts Same as under the No Action Alternative

- Impacts from Recreation

Impacts Same as under Alternative 1

- Impacts from Travel and Transportation

Impacts Same as under Alternative 4

- Impacts from Vegetative Communities

Impacts from Fire and Fuels Management

Impacts would be the similar to those described under Alternative 1, except that the intensity of adverse, short-term, local impacts would slightly increase because fire would be used as a management tool on 1,000 more acres per year under Alternative 5. Adverse impacts from using other fuels treatment methods would decrease compared to Alternative 5 due to 1,500 fewer acres per year being treated, the least among the action alternatives. Overall, prescribed burning would produce approximately 12,500 metric tons a year in GHG emissions, which would be the least among the action alternatives. Differences in both the short-term, adverse and long-term, beneficial impacts would remain undetectable or negligible.

Impacts from Forestry and Woodland Products

The 250 acres to be treated annually under Alternative 5 would be the smallest among the alternatives and there would be no harvest of forest products. This would result in an estimated 184 metric tons of CO₂ on average each year, or 11 percent of the 1,808 tons of CO₂ under the No Action Alternative and would be the least intense of the short-term, adverse impacts among the alternatives

Approximately 62 metric tons of carbon a year could be stored on the 250 treated acres for the twenty years following treatment. These 1,240 metric tons of stored carbon would be the equivalent of 4,588 metric tons of CO₂ not produced.

While hard to estimate in the short, moderate, and long terms, due to differences in net sequestration, and barring any major wildfires, the level of additional carbon stored under this alternative would be an estimated 10,875 metric tons each year. This would be until such time that overstocking resulted in a stagnant, static situation of annual CO₂ release more or less equivalent to the annual additions of stored carbon amounts.

On the other hand, in the long term, the forests in the Decision Area would have overstocked conditions, increased mortality due to insects and disease, and a serious risk of large catastrophic wildfires over time. The potential long-term, adverse impact would be more intense wildfire conditions with greater GHG emissions should a severe wildfire occur. Such wildfires could result in the release of 25,000 metric tons equivalent of CO₂ or more a year.

Impacts from Livestock Grazing

Grazing management under Alternative 5 would cut livestock use on public lands in half compared to the No Action Alternative, which would reduce methane gas production from public lands by 4,620 metric tons of CO₂ equivalent emitted each year. The difference in magnitude of

impacts, however, would be negligible. Impacts to rangeland carbon levels due to grazing practices would be the same as identified under the No Action Alternative.

Alternative 5a

Impacts Same as under Alternative 5

- Impacts from Vegetative Communities
- Impacts from Fire and Fuels Management
- Impacts for Forest and Woodland Products
- Impacts from Recreation
- Impacts from Travel and Transportation

Impacts from Livestock Grazing

Under Alternative 5a, grazing would ultimately cease and no methane gas production from livestock on public land would be emitted once current permits expire. There would also be no impact to carbon levels due to grazing practices. Impacts would remain negligible because the contribution of CO₂ under all of the other alternatives would be negligible.

c. Cumulative Impacts

No Action Alternative

The trend in climate change discussed in Chapter 3 would continue under the No Action Alternative. While there were no specific management actions regarding climate change in the current Baker RMP (BLM 1989) current management policy and direction is to address climate change. As identified in Table 4-1, the average total CO₂ equivalent production from the various program activities discussed below would be approximately 19,048 metric tons a year under the No Action Alternative. This would have a negligible impact.

By its very nature, climate change is a cumulative effects issue. Individual local GHG emissions are meaningless outside of the larger context of global cumulative emissions. As discussed in the Chapter 3, Section B.1, Climate, the precise link between potential emissions from BLM-proposed actions and specific impacts to or from global climate change is not known. However, it is known that some proposed actions would contribute to GHG levels in the atmosphere if implemented. These are discussed below in terms of estimated emission amounts that might be produced as a result of implementing these actions.

Estimated annual average total production of CO₂ equivalent from fuels, forestry, and grazing, the three primary programs that would produce GHG emissions, would be less than 20,000 metric tons a year under the No Action Alternative. This would be less than 0.000004 of one percent of annual national emissions and therefore less than the one half of one percent threshold and is thereby considered to be negligible. For comparison, the 2005 (latest year available)

Oregon statewide gross emissions from various sources in the state were approximately 70 million metric tons equivalent according to ODOE (2008). Total annual emissions from major industrial sources within the five Oregon counties within the Planning Area are estimated to be 7,635,620 metric tons equivalent by the ODEQ (2009). The BLM proposed actions, although not included in that figure, would be equivalent to 0.0026 of one percent of that total.

Over the 20 year period of this plan total emissions from public lands would be approximately 400,000 total metric tons, which would still be negligible at the national level for this duration of time.

Under all alternatives BLM actions would not be expected to influence directly or indirectly how non-BLM lands or resources are managed in terms of either increasing or decreasing CO₂ levels from those sources.

Alternative 1

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less than 27,500 metric tons a year. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

Cumulative impacts within the Planning Area would not be expected to differ significantly from the No Action Alternative as the assumption is that permittees would find alternative sources of pasture in order to sustain an economically viable herd size. Therefore, the total methane gas production within the Planning Area would not be expected to change measurably.

Alternative 2

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less than 28,200 metric tons a year under this alternative. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

Alternative 3

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less than 26,050 metric tons a year under this alternative. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

Alternative 4

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less than 36,250 metric tons a year under this alternative. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

Alternative 5

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less approximately 17,304 metric tons a year under this alternative, not taking into account the possibility of wildfires. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

Cumulative impacts could include exceeding 25,000 metric tons or more on a regular basis from large wildfires, which could possibly occur annually, until such time that wildfires reduced fuel loading on a significant portion of the public lands in the Planning Area. These potential long-term and cumulative impacts may not be a serious factor until approximately 20 years from implementation, which is toward the end of the period of this RMP. Both long-term and cumulative impacts would remain negligible.

Alternative 5a

Estimated annual average total production of CO₂ equivalent from the three primary programs that would produce GHG emissions would be less than 12,700 metric tons a year under this alternative, not taking into account the possibility of wildfires. Cumulative impacts would be similar to those discussed under the No Action Alternative above and would remain negligible due to the fact that GHG emissions and carbon sequestration from public land would be less than one half of 1 percent of the total for the Planning Area.

The cumulative impacts from a no grazing option would still be negligible compared to the no action alternative. The assumption is that under this option there might be a reduction in total cattle production within the Planning Area. This would be hard to estimate, as it would be likely that grazing permittees would simply shift to other sources of pasture for essentially the same number of cattle in order to maintain an economically viable herd size. The total production of methane gas within the total Planning Area would not change significantly, if at all. If grazing were reduced, the impact would be positive in terms of reducing methane emissions to a small degree, but would still be negligible.

2. AIR QUALITY

Impacts to air quality come primarily from sources outside the Planning Area, such as regional haze, and are therefore outside the scope of this Draft RMP/EIS. However, short-term air quality effects could result from fugitive dust and smoke that both directly and indirectly relate to proposed management actions. Main sources of fugitive dust include vehicle and equipment use on unpaved roads, road construction and maintenance activities, and mineral operations. Main sources of smoke arise from wildland and prescribed fires.

a. Indicators, Methods, and Assumptions

The analysis of potential impacts to air quality from the management actions proposed under the alternatives relied on peer-reviewed science literature and local expertise of BLM staff. This analysis uses both quantitative and qualitative measurements to compare impacts to air quality and is based on the following indicators and assumptions:

Air Quality Indicators

- **Use of fire.** Forested ecosystems that contain more overall biomass are assumed to yield more smoke, due to prolonged smoldering, than the more lightly vegetated rangelands and shrub-steppe ecosystems. This plan is strategic rather than specific, and therefore the total annual emissions from burning of piles, under-burning, and broadcast application of fire is not directly measurable but is indicated by the potential to utilize prescribed fire or use of wildland fire to achieve resource objectives.
- **Miles of road and motorized trails.** The amount of fugitive dust from roads would be proportional to the miles of the roads. Most BLM roads are native or gravel surface, which can produce dust.
- **Area Open or Limited for Off-Highway Vehicle (OHV) use.** The amount of dust and gaseous emissions from OHV use is assumed to be proportional to the acreage of land allocated for OHV use.
- **Acres of land available for mineral and/or energy development.** The amount of fugitive dust for mining and energy development operations would be proportional to the availability of land for mineral and energy development.

Air Quality Assumptions

- Sources of air pollutants for all alternatives in this plan are limited to smoke from wildfire and prescribed burning, herbicide applications, and dust from use of un-surfaced roads as well as road construction activities.
- Wildfires in rangeland are assumed to continue at their current frequency, intensity, and duration on average. Wildfires in forestlands are predicted to increase in frequency, intensity, and duration as the climate continues to change. However we do not know when these changes will occur or how they will play out over the Planning Area.

- While other sources of emissions are locally important (road construction, maintenance and use, mining, travel, farming, etc.), prescribed burning could degrade regional or airshed air quality.
- Smoke emissions from prescribed burning will generally dissipate to the north, south and east of the Planning Area, in the directions of the most common winds. Prevailing winds are WNW in the summer months and are southerly for the rest of the year.
- Smoke management strategies will be coordinated with state and local authorities as fire is used more frequently to preserve, restore and maintain forest and rangeland health and reduce hazardous fuels. All smoke emissions are coordinated through the Oregon Department of Forestry (ODF) under the Oregon Smoke Management Plan (SMP). The SMP now covers the entire state for forested lands. Prescribed fire on forested BLM lands in the Planning Area will follow the SMP. Rangeland burning is not covered in the SMP.
- Smoke from prescribed burning and wildland fires competes with smoke from agricultural burning, residential wood consumption, and smoke from neighboring agencies relative to smoke limits. Wildfires from within the Planning Area and also sources upwind on other lands will continue to contribute sporadic smoke impacts in the summer months. Many of the smoke impacts to the area come from field burning in Washington State, the La Grande and Baker Valleys, and from wildland and prescribed fires on the Malheur, Umatilla, and Wallowa-Whitman National Forests. In addition, blowing dust can originate in fallow fields to the west and north of the Planning Area.
- None of the alternatives proposes changes of a magnitude that would violate the Clean Air Act.
- It is assumed that placing more restrictions on OHV use within the Planning Area will result in less OHV use overall and will reduce the amount of dust produced by OHV use.

Magnitude of Impacts to Air Quality

Impacts are sometimes described using either a range of potential impacts or in specifically qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:* No changes to air quality would occur, or changes in air quality would be below or at the level of detection. If detected, the effects would be considered slight.
- Minor:* Changes to air quality would be measurable, although the changes would be small, short-term (with a duration of less than seven consecutive days), and local. Mitigation measures would not be necessary.
- Moderate:* Changes in air quality would be measurable and would have noticeable consequences, although the effect would be relatively local. Air quality mitigating measures would be necessary, and it is highly likely that they would be successful.

Major: Changes in air quality would be measurable, have substantial consequences, and be noticed regionally. Air quality mitigating measures would be necessary, but their success would be uncertain.

Impacts would also be described in terms of duration, which is defined as follows:

Short-term: Anticipated effects occur during implementation of the management action and would last from a few hours to a few weeks.

Long-term: Anticipated effects occur after five years and/or are continuous for over a year.

b. Impacts to Air Quality

Impacts to air quality in the Planning Area would result from actions proposed under the following resource management programs:

- Air Quality
- Invasive Plants and Noxious Weeds
- Fire and Fuels Management
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Right-of-Ways (ROWs): Renewable Energy

Impacts Common to all Alternatives

Impacts from Air Quality

Direction for air quality under the No Action Alternative has had beneficial, long-term impacts to air quality within the Decision Area. There have not been any violations of the National Ambient Air Quality Standards (NAAQS) due to land management activities on the Baker FO.

Impacts from Invasive Plants and Noxious Weeds

Herbicides have been used for noxious weed control efforts on a site-specific basis. Such use would be highly localized and constrained by standard operating procedures (SOPs) for herbicide application to control drift of chemicals into the airstream. As a result, the impacts to air quality would be negligible.

Impacts from Fire and Fuels Management

Mechanized activities associated with vegetation treatments have created fugitive dust and gaseous emissions from equipment. Impacts would be short-term as dust created during implementation settles in a short time period and remains close to the point of origin. Impacts from mechanical treatments under the No Action Alternative would be negligible and short-term.

Under the No Action Alternative, hazardous fuels have treated in the Wildland-Urban Interface (WUI) with prescribed fire. These projects have had the effect of producing particulate matter. All prescribed burns that have been completed have complied with the Oregon State SMP and the Clean Air Act. None of the projects have exceeded NAAQS. Impacts have been negligible and short-term.

Prescribed burning has also occurred in uplands away from populated areas to achieve fuels and vegetation management objectives. Areas in conifer forest environments are more likely to contain piles for burning than rangeland ecosystems. Piles have been burned in the spring or fall after some precipitation has been received, but while the larger material in the piles is still dry enough to burn, in order to limit the potential for fire spread. Dry fuels burn cleaner and hotter than wet fuels; therefore, less smoke is produced. All burning has been done during desirable weather conditions to meet objectives for risk reduction and fuel consumption, and to minimize smoke impacts to populated areas and protect visibility in Class 1 areas (Eagle Cap Wilderness, Hells Canyon Wilderness, and Strawberry Wilderness are the only Class 1 airsheds in the vicinity of the Planning Area) as specified in site specific burn plans for each project. Despite mitigation measures to reduce impacts, smoke produced from burning activities would be visible, and could cause a temporary, localized exceedance of particulate matter standards or result in impaired visibility. Impacts would, thus, be short-term and minor.

Smoke emissions (including GHGs) from wildfires are short-term events, mainly restricted to the active burning phase of a particular event. Rangeland fires are typically hot, rapid events in which most of the fuel consumption and smoke production occurs with the passage of the flaming front, and very little smoldering occurs after the fire due to the lack of duff and large fuels. Woodland, shrubland, and grassland fuels have a relatively short residual burning period. The length of time that smoldering combustion continues is measured in hours, rather than days or weeks as occurs in fires within forested vegetation.

Under the No Action Alternative, wildfire may be managed to achieve resource objectives. This tool has not been utilized within the Decision Area. These fires could emit smoke longer than planned ignitions, depending upon the vegetation types involved, which could potentially violate NAAQS. These potential violations are more likely to occur in severe burning conditions with multiple large fires burning across multiple jurisdictions. Longer duration fires would result in longer periods of time when smoke may limit visibility and elevate levels of particulate matter. Severe wildfires would result in greater direct, short-term emissions due to large volumes of smoke. Indirect impacts from severe fires could stem from reduced or eliminated vegetation cover, exposing the underlying soil to wind erosion, which could in turn increase levels of dust

during wind events. Although treatment efforts to reduce fuel loads would result in some direct, minor impacts to air quality, decreasing the potential of catastrophic wildfire would reduce particulate matter emissions over the long term, although less so than in the action alternatives.

Moderate amounts of smoke could be experienced in the immediate vicinity of treatment areas, but this would cause only short-term impact. In addition, most of these activities would take place away from populated areas (Baker City and La Grande) and would be implemented under conditions that would limit smoke intrusion into populated areas. Impacts would, therefore, be short-term and minor.

Impacts from Livestock Grazing

Where grazing and associated soil disturbances near stock waters and corrals have powdered the soil surface, fugitive dust would continue to be evident, especially during wind events. Overall, the impact to air quality from grazing would be negligible to minor, highly localized, and short-term. Such impacts would not occur under Alternative 5a due to the cessation of all grazing.

Impacts from Minerals

Activities associated with mineral leasing, sale, or location that would impact air quality include construction, mining, and processing operations, all of which emit dust. In addition, fuel consumption associated with mining contributes to gaseous emissions. Such impacts under the No Action Alternative would be negligible to minor and long-term, as mining operations tend to last for several years.

Impacts from Recreation

Under the No Action Alternative, the 5,000-acre Virtue Flat OHV Play Area would be open to motorized and mechanized vehicle use, with 3,500 acres designated as “Intensive Use,” and over 61 miles of trails. Vehicle use in an OHV play area, compared to use on designated and existing roads, has the potential to cause the greatest amount of direct impacts to air quality in terms of fugitive dust. Such dust emissions are seasonal, with most dust occurring during the dry, summer months, which is also when the area has received the most use. Impacts from recreation management under the No Action Alternative would be minor and short-term.

No Action Alternative

Impacts from Travel and Transportation

Under the No Action Alternative, motorized and mechanized vehicle use would be classified as open on 67 percent of the Decision Area. Travel on dirt and gravel surfaced roads, trails, and open areas in the Decision Area would cause fugitive dust, especially during dry parts of the year. Dust would be the greatest concern in areas open to off road use as repeated use or use on

sparsely vegetated rangelands would generate the most dust. Impacts would be short-term, seasonal, and would range from negligible to minor.

The current transportation system through the Decision Area involves 48 miles of highways, 1,006 miles of roads (mostly unpaved), and 97 miles of trails. Motorized vehicle travel on these roads and trails would result in continued GHG emissions from fuel combustion. Since the length of roads and trails across public lands make up only 3 percent of roads and trails in the Planning Area and travel on Decision Area roads and trails primarily consists of traffic that is just passing through, the contribution of gas emissions, and its effect on air quality, from travel across public lands would be negligible.

Impacts from ROWs: Renewable Energy

Construction and development activities related to renewable energy development and associated access roads would emit dust, while fuel consumption related to development activities would contribute to gaseous emissions. These impacts would be short-term and minor, being limited to the specific project area. Maintenance activities would involve travel to and from the energy development site, which would generate negligible amounts of fugitive dust over the long term.

Impacts Common to all Action Alternatives

Impacts from ROWs: Renewable Energy

The types of impacts from energy developments would be the same as under the No Action Alternative; however, these impacts would not be as extensive due to renewable energy exclusion and avoidance areas.

Alternative 1

Impacts from Travel and Transportation

Alternative 1 classifies 1 percent of the Decision Area as open to motorized vehicles. This would be a significant reduction from the No Action Alternative. Impacts from reducing areas classified as open under this alternative would have beneficial, long-term impacts to air quality.

Alternative 2

Impacts from Travel and Transportation

Alternative 1 classifies 7 percent of the Decision Area as open to motorized vehicles. This would be a significant reduction from the No Action Alternative and slightly more than proposed under Alternative 1. Impacts from reducing areas classified as open under this alternative would have beneficial, long-term impacts to air quality.

Alternative 3Impacts Same as Alternative 2

- Impacts from Travel and Transportation

Alternatives 4 and 5/5aImpacts Same as Alternative 1

- Impacts from Travel and Transportation and Access

c. Cumulative Impacts***All Alternatives***

Past management actions that have affected air quality include use of herbicides, fire and fuels management, minerals and renewable energy activities, recreation, travel management, and livestock grazing.

The geographic area of analysis for cumulative impacts to wildfire is the Planning Area and adjacent lands. Wildfires in the geographic area would periodically continue to contribute particulate matter to the airshed. Drought would increase fuel loads in the short term, which may increase fire intensities, and the size of wildfires. The Malheur, Umatilla, and Wallowa-Whitman National Forests are increasing the annual acres burned in response to the National Fire Plan. Fuel treatments, wildfires managed to achieve resource objectives, and suppression fires anticipated over the life of the plan, in conjunction with the anticipated concurrent community hazardous fuel reduction projects and BLM actions, would increase total emissions in the short term with an expected long-term reduction in the total volume of wildfire emissions as fuel breaks become more common and the probability of smaller fires increase. Bureau of Land Management actions, in combination with other regional actions, would not cumulatively exceed the thresholds of the Clean Air Act standards because actions will be carried out in compliance with the Oregon State SMP.

Present and future actions that could affect air quality include continuation of resource management under the No Action Alternative and fuels and fire management activities conducted on adjacent land ownerships (private, local government, state, federal).

Past, present, and future actions have had both beneficial and negative cumulative impacts to fire and fuels management within the Planning Area. Negative impacts to air quality, as discussed, would be negligible to minor and short-term in duration. Overall, the management direction that would be implemented under the No Action Alternative would result in beneficial, long-term impacts to Air Quality.

3. WATER RESOURCES

This section describes the direct, indirect, and cumulative impacts on water resources from implementation of management actions under each alternative. Direct and indirect effects occur from management actions, such as construction and maintenance activities, use or closure of roads and trails, foraging and trampling by livestock and wildlife, wildfires and fire suppression activities, energy and mineral development, and the introduction, proliferation, and treatment of invasive plants and noxious weeds. The magnitude of effect is dependent on the acreage affected, how much ground disturbance occurs, and how close the areas affected are to water. Activities within the riparian area can have the greatest impact to water resources as they affect the land closest to water. Removal of vegetation close to streams allows for increased solar heating of streams. Ground disturbance within riparian areas may lead to increased erosion and increased sedimentation of streams.

Roads that are connected to streams extend the stream network and increase the amount of fine sediment working its way into streams. Cross-country travel compacts soil, causes erosion, and can add fine sediment to nearby streams. Heavy grazing in riparian areas can remove vegetation, trample banks, and contaminate the water with *E. coli*. Heavy grazing in the uplands can lead to loss of soil cover and compaction, leading to changes in the water holding capacity of the soil. Mining strips the vegetation and sometimes leads to acid drainage. Heavily used recreation areas, particularly around rivers, can have negative effects from compaction, removal of ground cover, and addition of feces to the water. Management for hydrology, soils, vegetation, fisheries, wildlife, SMAs such as wild and scenic rivers (WSRs) and areas of critical environmental concern (ACECs) would likely have positive impacts as they would emphasize management that protects water resource values.

A cumulative impact results from the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions generally over a wider area. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The BLM's ability to influence future conditions is limited by the scattered parcels and small amount of public land in most subbasins (see the Water Resources section in Chapter 3 for ownership by subbasin). Where more contiguous parcels of public land are found, BLM management can have larger impacts on channel condition and water quality. Impacts to water resources within the Planning Area are heavily impacted by activities on other lands. Working with other landowners is a priority under all alternatives to improve water quality. Emphasis for water quality and fisheries conservation and restoration management would occur in conservation and restoration watersheds under all action alternatives (see Appendix 2.2 for the Baker Aquatic and Riparian Management Strategy [ARMS]).

a. Indicators, Methods, and Assumptions***Water Resources Indicators***

Indicators are used to identify the level of impacts by alternative. As the BLM has little control over water withdrawals, it has little control over water quantity except where increased riparian vegetation can improve perennial flow for a stream reach; therefore, the focus of the following discussion will be water quality.

For water quality, changes in sediment and temperature regimes of streams are important indicators as temperature and sediment are two of the most frequently found pollutants of streams as seen by the Oregon 303(d)-listed streams for the area (Appendix 3.1). Proper functioning condition (PFC) surveys are used as baseline information for assessing the stability of stream channels and riparian vegetation. Some of the surveys are older and changes to conditions have occurred, either due to changes in management or due to fire. As monitoring data for sediment or temperature is not available everywhere, impact analysis is often based on variations in acres of ground disturbing activities or miles of stream restoration by alternative. The stability of stream banks and riparian systems are important for controlling fine sediment that adversely impacts water quality. Changes in stream stability and riparian systems can be gauged indirectly by miles of stream at PFC or showing an upward trend, and by miles of restoration improving stream or riparian function. While stream temperature is influenced by flows, groundwater inputs, aspect, elevation, and channel conditions, riparian vegetation is one of the few variables that management can change. Improving riparian vegetation to site potential is important for shading streams from direct heating from the sun and lowering the stream temperature to meet beneficial uses.

Water Resources Methods and Assumptions

The analysis of potential impacts to water resources from the management actions proposed under the alternatives relied on peer-reviewed science literature and local expertise of BLM staff. In addition, the impact analysis is based on Geographic Information System (GIS) data, PFC surveys, Rangeland Health monitoring, water quality data, other agency documents, and information provided by non-planning team experts in the BLM and other agencies. This analysis uses both quantitative and qualitative measurements to compare impacts to water resources and is based on the following assumptions:

- Alternatives that involve ground-disturbing activities could have an adverse impact on water quality due to loss of ground cover and subsequent production of sediment that could be transported from the disturbed site to a nearby body of water. Qualitatively, impacts would be greater where more ground disturbance occurs or in sensitive areas, such close to streams, wetlands, lakes, or on steep slopes.
- Direct impacts to riparian vegetation and stream bank stability have a high impact on water quality and stream function. Both temperature and sediment are affected by the condition of the riparian vegetation. Riparian vegetation provides shade from solar

radiation and provides stability to banks, particularly the deeper roots of woody vegetation such as shrubs and trees. This is especially important on smaller, relatively narrow channels. Management decisions that affect riparian and upland vegetative condition can have both direct and indirect effects on water resources and their beneficial uses. Healthy riparian vegetation at site potential improves water quality, stabilizes stream banks, and helps bodies of water meet beneficial uses.

- Beneficial uses of water resources are affected primarily by temperature but also by fine sediment, E. coli, and other water quality parameters (see Water Resources, Chapter 3).
- Roads and railroad grades connected to the stream channel, logging, past or present grazing, past or present mining, or a combination of the above can influence the present function of streams and their ability to meet state defined beneficial uses.
- For streams to attain beneficial uses, particularly for stream temperature and sediment, riparian vegetation needs to be healthy, of multiple age classes, and appropriate for the site.
- Special management areas provide more protection for water resources.
- Acres open to motorized cross-country travel are at greater risk for erosion and subsequent sedimentation.
- Adequate stubble height in riparian areas is positive for streams due to increased bank stability and sediment filtering. Higher riparian stubble heights allow for more growth of woody vegetation.

Incomplete or Unavailable Information

Not all of the streams and riparian areas within the Decision Area have been inventoried using PFC. Of the 1863.3 miles of streams listed in the Baker BLM GIS streams layer, approximately 25 percent have been surveyed. Rangeland health standards monitoring has not occurred on all the pastures. It is assumed that the condition of streams and riparian areas that have not been surveyed would have both a similar ratio of PFC trend and of meeting to not meeting rangeland health standards as the surveyed areas.

Magnitude of Impacts to Water Resources

Impacts on water resources are assessed both quantitatively and qualitatively. Beneficial impacts are those that maintain or improve water quality to meet beneficial uses, while adverse impacts are those that degrade water quality, with larger effects causing an inability to meet beneficial uses. Impacts are sometimes described using a range of potential impacts or in specifically qualitative terms. The intensity of impacts, and their spatial and temporal scales, is also discussed using the following guidelines:

Negligible: Changes in water quality would be non-detectable or very small, generally within the range of natural variability or within historical or desired water quality conditions.

<i>Minor:</i>	Changes to water quality would be detectable, but would be within historical or desired water quality conditions, or they would occur only at a local scale.
<i>Moderate:</i>	Changes in water quality would be detectable and measurable, potentially over a widespread area such as a subbasin.
<i>Major:</i>	Changes in water quality would be detectable and would be frequently altered from the historical baseline or desired water quality conditions and/or water quality standards or criteria would be exceeded on a short-term basis over a wide area such as a watershed, subbasin, or the entire Decision Area. Extensive mitigations would be required to avoid impairment of water resources.

Spatial Scale:

<i>Local:</i>	Impacts are seen at on a stream or reach of a stream.
<i>Watershed scale:</i>	Impacts are seen at the 5 th field watershed scale.
<i>Subbasin:</i>	Impacts are seen at the 4 th field watershed scale.
<i>Widespread:</i>	Decision Area-the action impacts most of the public lands managed under this plan.

Temporal Scale:

<i>Short-term:</i>	Impacts occur from 0 to 5 years of project implementation.
<i>Long-term:</i>	Impacts occur for longer than 5 years.

b. Impacts to Water Resources

Impacts to water resources would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetation Communities
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs
- WSRs

*No Action Alternative*Impacts from Water Resources

Under the No Action Alternative, the BLM would comply with federal and state mandates to meet water quality standards, including requirements to improve water quality identified in state Total Maximum Daily Load (TMDL) implementation plans for watersheds with impaired waterbodies. The Burnt River and Powder River TMDLs and Water Quality Management Plans (WQMPs) have not yet been written. Once they are written and implemented, changes in management in the Burnt and Powder River watersheds would be beneficial, long-term, and range from moderate to major.

Implementing SOPs and best management plans (BMPs) related to road construction and maintenance, timber harvesting activities, fire prevention, noxious weed control, and other management actions would minimize or prevent soil erosion, slow runoff, and minimize discharge of chemicals or nutrients to surface and groundwater.

Compliance with state and federal requirements to protect groundwater would be pursued under all alternatives, even if not specifically discussed.

Roads

The No Action Alternative does not include management actions to remove roads within riparian areas, including along the 32 miles of stream known to be affected by BLM roads; however, such removals could occur with a future TMP. Overall road densities would be unlikely to decrease. Localized, long-term, adverse effects from these existing roads on the impacted streams would continue to be moderate to major. Due to the small number of public (BLM controlled) roads within the Decision Area, overall impacts in the Decision Area would be long-term, but minor to moderate, depending on changes that would occur due to the TMP, rather than due to this RMP.

Riparian Habitat Conservation Areas (RHCAs)

The No Action Alternative would continue the use of RHCAs, under Interim Strategy for Managing Anadromous Fish-Producing Watersheds (PACFISH; USFS and BLM 1995) and the BLM Bull Trout Strategy. The RHCAs are intended to protect water quality and aquatic habitat by restricting surface and stream bank disturbance to reduce sediment inputs from erosion, and to retain vegetation to provide shade from solar radiation so that water temperature will remain cooler. These give streams, waterbodies, and wetlands a higher degree of protection compared to the uplands. Impacts would be short- and long-term, moderate, and beneficial at both the local and watershed scale where anadromous fish or bulltrout occur. The RHCAs are not required in other watersheds, which would result in a long-term, moderate, adverse effect in such watersheds.

Restoration and Conservation Watersheds

The work in Morgan Creek, which was a priority watershed, is complete and would continue to provide for local, minor to moderate improvements. Other restoration efforts have focused on anadromous watersheds, which would continue to experience minor to moderate improvements. The Powder River and Burnt River subbasins, which have the highest percentage of streams not meeting rangeland health standards, would not be prioritized for restoration under the No Action Alternative. Therefore, improvements in conditions in these subbasins would be expected to be slow to occur and would occur under other direction.

Restoration and Riparian Vegetation

While no management actions require riparian restoration, approximately 40 miles of restoration occurs every ten years. This work has concentrated in anadromous watersheds and along Morgan Creek, a tributary to the Snake River, and has been moderately beneficial locally, but a negligible to minor, beneficial impact at the subbasin scale.

Impacts from Soil Resources

Soil BMPs and SOPs designed to minimize impacts from active management to protect water quality would also be followed. These include requirements for percentages of soil cover and allowable compaction. This management direction would be expected to have a long-term, minor to moderate, beneficial impact to water quality by improving riparian areas and increasing soil stability.

Well-established biotic crusts add stability in areas such as sagebrush where there is poor ground cover between the shrubs (see Biological Crusts: Chapter 3, page 3-30). The No Action Alternative gives no specific protection to hydric soils, highly erosive soils, or biological crusts from such activities as OHV use or grazing. As a result, such unique soils would likely continue to degrade. These crusts are especially important on the approximately 35,202 acres of Mountain Sagebrush and Wyoming Big Sagebrush that are not meeting rangeland health standards and are suitable to support biological crusts. In areas where sagebrush is the dominant vegetation and there are sparse native grasses, more erosion and subsequent sedimentation would be expected as crusts continue to deteriorate (Belnap et al. 2001). Under the No Action Alternative, not protecting biotic crusts would have a long-term, minor, adverse effect at the watershed scale. However, long-term, negative impacts could be moderate for streams in watersheds with large amounts of sagebrush where these crusts are important for soil stability.

Impacts from Vegetative Communities*Riparian*

Healthy riparian vegetation at or approaching site potential increases shading and bank stability, filters sediment and nutrients, and protects aquatic and riparian habitat. As a result, degraded

riparian vegetation has an adverse affect on water quality. While continued implementation of Rangeland Standards and Guidelines (BLM 1997) would lead to slow improvements in riparian vegetation, the lack of specific riparian stubble height requirements under the No Action Alternative would allow for removal of much of the riparian vegetation. The same utilization set for riparian and uplands (except in the Grande Ronde Geographic Unit [GU]) would continue to stress the condition of the riparian areas as cattle preferentially graze riparian areas, removing bank stabilizing vegetation as well as vegetation necessary to filter sediment before it reaches the stream. As a result, the overall health of riparian zones would improve slowly, and it would be unlikely for riparian vegetation to reach site potential over a widespread area. The exceptions are on allotments containing listed fish streams or livestock permits covered under current NEPA documents. These allotments have higher stubble height requirements, which result in long-term, localized, moderate, beneficial effects.

PFC surveys occur on streams under the No Action Alternative to characterize the condition of the riparian area and stream channel. This data would be used with other analyses to decide where changes are needed in grazing systems to move streams towards PFC to meet rangeland health standards for riparian conditions. Implementing Rangeland Standards and Guidelines (BLM 1997) would continue to make slow and minor to moderate improvements to riparian conditions on some of the 189 miles of streams in the Decision Area that are not meeting rangeland health standards. Of these, 117 miles (62 percent) of streams have livestock suspected as a factor in their degraded condition. Local, short-term impacts would be beneficial, minor, due to the time it would take to change management direction based on monitoring data. As management would slowly change for the 189 miles of streams not meeting rangeland health standards, impacts in the long term would be beneficial and moderate. Impaired stream channels would be expected to stabilize, and elevated sediment levels to decrease for a widespread, moderate, beneficial effect. Without riparian stubble height requirements, the growth of riparian vegetation to site potential would be expected to be very slow with negligible to minor, short-term effects. Over the long term (20 years), riparian vegetation should grow to the point that it improved stream shading and moderate stream temperatures, and would likely result in a widespread, long-term, moderate to major, beneficial effect.

Uplands

Under the No Action Alternative, some of the non-native annual grass allotments would continue to be grazed during mid spring to mid summer when the non-native grasses are not palatable to livestock, which tends to concentrate livestock use in riparian areas. Overuse of riparian areas leads to removal of bank stabilizing vegetation, compacts banks, and causes cutting of the banks that then fall into the stream. This adds fine-sediment to the stream, and creates a wider, shallower channel more likely to have elevated water temperatures due to lack of shading. Adverse impacts for the Decision Area would be negligible to minor. Adverse impacts in the Powder River subbasin, specifically along the 3 to 4 miles of stream in the Powder River area in pastures with primarily non-native annual grass (that are presently not meeting rangeland health standards) would have a long-term, moderate to major, adverse impact at the local level.

The No Action Alternative presents no provisions to impose long-term rest on livestock grazing to achieve vegetation objectives. While changes in season of livestock use, reducing stocking rates, and/or improving distribution may occur under this alternative, it would often not be enough to improve rangeland health to a desirable condition, which can lead to adverse effects on riparian areas and, subsequently, to water resources. Overall, impacts would be long-term, adverse, and moderate. Adverse impacts at the localized level would range from minor to major, depending on local conditions.

While the No Action Alternative provides no specific treatments for the reduction of juniper, approximately 9,000 acres are treated every ten years. Areas with increased juniper have less understory vegetation, reduced infiltration, and increased erosion, which can adversely impact water quality (Pierson et al. 2007). Impacts from treatment could result in local, minor to moderate, short-term, adverse effects to water quality due to increased ground disturbance and subsequent elevated sediment, and sometimes ash additions to streams. In the long term, effects of the No Action Alternative, such treatments would result in minor, beneficial impacts due to improved infiltration from higher groundcover and the resulting reduced erosion (Peterson and Stringham 2008).

Impacts from Invasive Plants and Noxious Weeds

While the current Baker RMP (BLM 1989) gives no direction for new invasive and noxious weed species and the prevention of existing weeds spreading into new areas, current policy is to treat newly found sites and species of invasive and noxious weeds with early detection rapid response (EDRR). Continuing this practice under the No Action Alternative would involve treating weeds while the infestations are small and remain localized. This would positively impact water quality as less herbicide would be used to treat smaller infestations before larger infestations become established. This would give added protection to groundwater because smaller amounts of herbicide would be used to treat the smaller infestations, lowering the risk of herbicide entering groundwater. SOPs require that soil depth and porosity would be taken into account to protect groundwater.

In general, weed treatments in riparian areas can lead to long-term, minor to moderate, localized improvements where treatments occur. Such treatments could also have minor, short-term, adverse impacts due to the slight risk to water quality where treatments occur near streams from use of herbicides or from ground disturbance, erosion, and subsequent sedimentation.

Controlling weeds could negatively affect water quality if herbicides are allowed to enter the water; however, chemical applications would be conducted by trained personnel and designed to minimize such impacts. Treatments would generally occur in the riparian areas at small treatment sites. Overall, adverse impacts from herbicide use would likely range from negligible to minor.

Manual or mechanical removal of plants could have minor adverse effects to water quality where erosion occurs. Generally, if ground disturbance occurs near water during treatments, stabilizing

techniques, such as mulching, would be used until the site is re-vegetated. Adverse impacts would be localized and short-term, generally lasting 1 to 2 years until the site was re-vegetated. Removal of invasive plants would allow native plants to reoccupy the site, which would result in long-term, beneficial impacts to water quality. Where the site does not re-vegetate naturally, lack of management actions requiring intensive restoration under the No Action Alternative would result in moderate, local, adverse impacts due to the lack of restoration and the reestablishment of weeds.

Impacts from Fisheries

Under the No Action Alternative, the PACFISH biological opinion (including RHCA's discussed under Water Resources above) would continue to be implemented to protect water resources. The primary focus for restoration and improvements to stream habitat would be watersheds with anadromous fish species, which would experience minor to moderate benefits to riparian habitat and water quality. On the other hand, watersheds without anadromous fish habitat would receive little active management as far as restoration or aquatic habitat enhancement and thus experience no improvements in condition. The latter includes the Brownlee Reservoir, Powder River, and Burnt River subbasins, which cover the majority of the Decision Area. As a result, instream and riparian habitats in these subbasins would continue to experience long-term, moderate, adverse impacts.

Exclosures would continue to be maintained under the No Action Alternative, which would result locally in major, beneficial impacts, but would have widespread, minor, beneficial impacts due to the increase in riparian vegetation and protection of the banks from trampling.

The No Action Alternative provides no specific direction on addressing hydropower facilities or the placement of dams. Dams can have positive or negative effects on water quality and quantity. On the positive side, dams can help maintain cooler temperatures in the streams and add to summer flows. Dams tend to change channel conditions by changing the flow regime, particularly the timing of flows.

Dams can adversely affect channel stability and generally change the sediment regime of a stream by capturing sediment in the dam, lowering the channel forming and maintaining sediment load below the dam. The wild portions of WSRs such as the Grande Ronde and part of the Powder River are protected from the building of new dams. The Burnt River has no specific management direction for dams or hydroelectric development.

Impacts from Wildlife

Management actions for wildlife are very general under the No Action Alternative. Improving big game habitat would have a minor, local, beneficial impact on water resources where roads were closed, or where vegetation was successfully planted. Impacts would be negligible at the subbasin scale due to the small acreages affected.

Unlike the action alternatives, the No Action Alternative provides no specific requirements to close or decommission roads for wildlife. Roads would continue to have a long-term, minor to major, adverse impact on riparian areas, depending on the road stream connectivity. In addition, there would be no management action emphasizing riparian habitat and, therefore, no improvement in riparian condition (and subsequent improvements in water quality) would be expected from wildlife management. The No Action Alternative does not provide requirements to restore non-native grasslands (see Impacts from Vegetative Communities). Wyoming big sagebrush communities would not have the increased protection found under other alternatives and would continue to have elevated levels of erosion and potential for elevated sediment delivery to nearby streams. Finally, the No Action Alternative provides no management actions to change grazing management to rehabilitate wildlife habitat and, therefore, elevated erosion found from degraded habitat would likely continue.

Impacts from Fires and Fuels Management

Fire and fuels treatments could impact water quality by temporarily increasing sediment yield runoff characteristics and water chemistry (Elliot et al. 2010). Wildfire use could potentially accelerate soil erosion and sedimentation, which would temporarily degrade water quality. Burning involves the removal of groundcover, movement of sediment and ash into water, and sometimes the removal of stabilizing vegetation along stream banks. Where the riparian vegetation burns, increased solar radiation can lead to an increase in stream temperature. The magnitude of these effects depends on the size and intensity of the fire and its proximity to streams.

Prescribed fires could increase erosion rates from fire-line construction, especially on steep slopes, and could remove soil cover. This, in turn, could temporarily impact water quality with the addition of sediment and ash. Since prescribed fires generally burn at a lower intensity than many of the larger wildfires, adverse impacts to water quality from such burns would generally be minor, with some moderate effects at the local level. These effects would be short-term, lasting only a season or two until the site is re-vegetated and the elevated erosion returns to background levels.

Mechanical treatments involving heavy equipment could increase soil compaction, slowing re-establishment of vegetation cover, and thus could temporarily impact water quality due to increased erosion and runoff (Elliot et al. 2010). Management prescriptions and post fire rehabilitation would help minimize some of these impacts, which would generally be minor and short-term. However, long-term impacts to water resources associated with catastrophic fire would be much greater due to extensive loss of vegetation cover, leading to erosion and runoff, and damaged by fire equipment off and on road to suppress the fires. Thus, while treatment would result in some direct, minor impacts to water quality, decreasing the potential of hazardous effects of unplanned wildfire by reducing fuel loads would result in widespread, long-term, indirect impacts to water quality that would be minor to moderate in magnitude, depending on the size and intensities of the fires.

Under the No Action Alternative, prescribed burning or wildfire use would continue on approximately 9,000 acres per decade, which could result in minor to moderate, localized, short-term negative effects depending on fire intensity, erosion, and subsequent movement of fine sediment. Many treatments would be to maintain areas that have already been treated in the past. As the purpose of treatment would be to protect specific areas from wildfire or return an area to a more natural fire regime, the effects would be beneficial, long-term, and minor to moderate.

Impacts from other fuel treatments such as thinning, mastication, and lop and scattered, which would occur on up to 9,000 acres per decade under the No Action Alternative, would be reduced using BMPs to minimize soil compaction or disturbance. In general, buffers would be used between water resources and treatment areas to protect the stream from addition of fine sediment. Between the use of buffers and BMPs, the use of mechanical equipment would have negligible to minor, short-term effects on water resources. In the long term, fuel treatments would have minor to moderate benefits from the protection from high intensity wildfires provided by the treatments at the local or watershed scale.

Impacts from Forestry and Woodland Products

Under the No Action Alternative, forest harvest would continue on 25,353 acres with a focus on timber production. In general, SOPs and BMPs would continue to minimize adverse effects to water resources from harvest by such actions as requiring water barring of skid trails, keeping adequate groundcover and minimizing compaction (see Appendix 2.1). The most important protection would be provided by buffering streams from ground disturbing activities. Proximity of ground disturbance to streams is an important factor controlling sediment delivery (Rashin et al. 2006). A study on the effectiveness of BMPs in the state of Washington found that of 212 erosion features within 10 meters (approximately 30 feet) of a stream, 67 percent of the features delivered sediment to the stream. Of 193 erosion features greater than 30 feet from a stream, 95 percent did not deliver sediment to the stream (Rashin et al. 2006). Riparian buffers can potentially protect streams from sediment input by acting as filters for overland flow traversing the riparian zone from the hill slope to the stream. In addition, the buffer ensures that physical disturbances (e.g., due to tractor yarding) would be minimized in the zone directly adjacent to the stream. In experimental watershed studies (see Gomi et al. 2005), streams with buffers ranging from about 10 to 30 meters wide had relatively small increases in sediment yield, except where sediment was generated by mass movements or road erosion.

Riparian habitat conservation areas (i.e., PACFISH) lower the risk to water quality by reducing impacts from management near stream, such as by protecting shading along streams so stream temperatures do not increase. Protecting groundcover along stream from disturbance by providing buffers from mechanical disturbance would help trap sediment moving from outside the RHCA before it reaches a stream.

Roads are potentially an important source of increased fine sediment in streams, and can negatively affect water quality (Furniss et al. 1991; Wemple et al. 2001). The additional use of roads for hauling could increase fine sediment in streams next to such roads, which would result

in localized, short-term, minor to moderate, adverse impacts depending on the road condition. The increased use of roads during logging has more affect than the logging itself. Generally, surfacing helps minimize sediment production from the road surface. However, a study of logging roads concluded that heavily used gravel roads generate up to 130 times more sediment than abandoned roads (Gomi et al. 2005).

Given the relatively small acreage in woodlands in the Decision Area and the use of BMPs, overall effects would be adverse, short-term, and minor at the local level, but negligible at the subbasin scale.

Impacts from Livestock Grazing

In the past, livestock grazing had a long-term, moderate to major, adverse impact on streams and riparian areas in eastern Oregon due to overstocking and season of use (Elmer and Beschta 1987). Because riparian areas are a narrow strip along streams and are small in acreage, they tend to be included in the upland pasture. Livestock tend to prefer grazing in riparian areas, especially during the hot summer months. This removes riparian vegetation necessary for shading from solar radiation, providing bank stability, and trapping nutrients. There are currently 117 miles of surveyed streams, 62 percent of which do not at least partially meet PFC due to present grazing.

Continued implementation of Rangeland Standards and Guidelines (BLM 1997) would lead to slow improvement in riparian conditions due to changes in timing of grazing or number of animals grazed, thereby leading to an increase in riparian vegetation and less trampling of banks. These changes would lower the input of fine sediment into streams where changes in management occurs. In the short term, changes to grazing systems would have minor, beneficial effects. In the long term, moderate, beneficial effects could be expected where changes to grazing systems are successful.

To meet PFC, the riparian area needs to be stable; it does not necessarily need for the vegetation to approach the vegetation site potential. Many of the lower elevation streams in the Decision Area are lacking in the shrub component or healthy sedges and rushes that provides shade from the thermal radiation of the sun. Changes in vegetation under the No Action Alternative would be unlikely to add sufficient vegetation to have a more than a minor beneficial effect to water quality from stream shading and stream temperature. For the Burnt River subbasin and some reaches of the Powder River, fecal coliform from livestock along the river is a pollutant, adversely affecting beneficial uses. This would be likely to continue under the No Action Alternative.

Not grazing exclosures under the No Action Alternative would continue to have minor to major, beneficial effects to these localized areas.

Increased grazing numbers or increased length of grazing could occur under the No Action Alternative, which could have local, negligible to moderate, adverse effects to water resources.

Impacts from Minerals

Under Alternative 1, all areas except WSRs and the National Historic Oregon Trail Interpretation Center (NHOTIC) would be open to mining. Mining can be detrimental to water quality due to digging up soils and moving sediment both in and out of the streams. Past mining still influences water quality due to both acid drainage and mercury contamination, which was used in the past to amalgamate gold and is now stored in sediments in streams and on terraces near streams. Past mining has the greatest long-term, adverse effect on streams in the Powder River and Burnt River subbasins. The Mormon Basin area in the Willow subbasin has also been heavily mined in the past and could potentially be mined in the future. There are 20 miles of stream within the Decision Area where mining is listed as a factor for the stream not meeting PFC. While not presently mined as heavily as in the past, these areas would remain vulnerable to localized, major, adverse effects from both present and the potential expansion of mining under the No Action Alternative.

Impacts from Recreation

Virtual Flat OHV Play Area is approximately 5,000 acres with 61 miles of trail. There are no perennial streams within the OHV area, but ephemeral streams and draws carry sediment downstream to perennial streams and cause long-term, local, minor to moderate, adverse impacts. Given the small size of the area, the adverse effect would be long-term locally, but minor on a watershed scale.

In general, as OHV use continues to expand in popularity, the open OHV designation under the No Action Alternative would lead to long-term, localized, but major, effects and widespread, moderate, adverse effects to water quality as more areas are detrimentally affected by the increased OHV use. This is discussed in greater detail under Impacts from Travel and Transportation.

Construction of facilities and range improvements such as campgrounds, interpretive sites, water developments (reservoirs, wells, and springs), and fences would result in ground disturbing activities, which could have adverse impact on water resources. Because facilities are limited within the Decision Area, adverse impacts would generally be localized and range from minor to moderate. Upgrading substandard facilities could improve water resources by improving water quality problems caused by erosion and subsequent sedimentation, thus resulting in beneficial impacts. Overall, effects from facilities would be negligible at the watershed scale or larger.

River rafting can have moderate, adverse, localized effects in more heavily used, popular areas. Within the Decision Area, the Grande Ronde would continue to experience trampling, compaction, and removal of wood by rafters, which could have negligible to minor, adverse impacts to water quality at the local level.

Dispersed camping with vehicles has recently been restricted to within 100 feet of a road or trail for a moderate beneficial effect compared to unrestricted use in the past. As the more popular areas are near water, this would have a localized, long-term, moderate, beneficial impact.

Dispersed recreation, without off-road motorized use, such as hiking and hunting, are generally low-impact activities and would result in localized, minor impacts only in the more heavily used areas.

Overall effects from recreation would be adverse, long-term, local, and minor, and generally occur only in the more heavily impacted recreation sites.

Impacts from Travel and Transportation

Roads that closely parallel streams or have many stream crossings would have the highest impact on streams by adding elevated amounts of fine sediment to streams. Roads farther away from streams would be less likely to be connected to the channel system and, therefore, less likely to have adverse impacts to streams. Based on PFC surveys, approximately 35 miles of stream within the Decision Area are currently impacted by roads. Of these, 28 miles are impacted by roads under BLM control, and a further 17 miles by county roads; however, changes to county roads are outside the scope of this analysis. Roads can have an adverse, long-term, major impact on local water resources. While roads can have a moderate to major, adverse effect on stream function locally, due to the relatively low number of miles of BLM managed roads for the size of the Decision Area, BLM roads have an adverse, minor to moderate, long-term impact at the subbasin scale.

Under the No Action Alternative, the majority of public lands (287,611 acres, 67 percent) would remain designated as open for OHV use, which would lead to more user-created trails and two track roads. Where these roads cross streams or draws, they would add elevated levels of fine sediment to the waterways. This would create localized, moderate to major, adverse impacts that would generally remain long-term, as roads and trails would be difficult to effectively close within the Decision Area where there are no natural barriers to travel. In general, as OHV use continues to expand in popularity, the open OHV designation would lead to long-term, localized (but major) effects overall, and adverse, widespread, moderate effects to water quality as more areas are detrimentally affected by the increased OHV use. As two-track roads expand, so do road densities, which would result in long-term, moderate, adverse impacts to water resources, particularly to streams that are close to roads.

Limited areas require that users stay on existing roads and trails. This limits the expansion of soil disturbance and keeps impacts to areas that have already been affected. Thirty-two percent of the Decision Area would have limited status under the No Action Alternative. The less than 1 percent of the Decision Area closed to OHV use would receive a long-term, moderate, beneficial impact from this designation.

Impacts from Lands and Realty

In general, ROWs take land out of production, lead to soil compaction, creates a wider area of disturbance, and generally involve more road miles, all of which can lead to increased sediment levels in nearby streams. All lands in the Decision Area under the No Action Alternative would be open for ROWs except wild segments of designated WSRs, while Wilderness Study Areas (WSAs), ACECs, and scenic and recreation segments of WSRs would be avoided where possible. There would be minor to moderate, beneficial impacts at the local to watershed scale where exclusion areas occur, as there would be no disturbances from additional ROWs.

Avoidance areas provide some protection, although they may or may not be impacted in the long term and are, therefore, less protective than exclusion areas. This leaves most of the streams in the Decision Area vulnerable to an increase in ROWs. Such potential adverse impacts could be seen at the local to watershed scale and would be long-term, and range from minor to moderate.

Under the No Action Alternative, 8,696 acres would remain closed to mining activity, which includes the areas around WSRs, and NHOTIC, which would give moderate, localized, long-term protection to these local areas from the effects discussed in the Impacts from Minerals section above.

Impacts from ACECs

Under the No Action Alternative, the 10 existing ACECs covering 48,153 acres (11 percent of the Decision Area) would remain designated. Management in these areas such as restrictions on off-road use and surface mine occupancy, as well as grazing restrictions or exclusions, would continue to limit the amount of ground disturbances in ACECs that can cause elevated levels of erosion and increase the amount of fine sediment in streams. In some ACECs, maintaining grazing restrictions would continue to improve the riparian condition, and thus lead to improvements in water quality. Overall, beneficial impacts from ACEC management to water resources at the local level would be long-term and range from minor to moderate. Impacts at the Decision Area or subbasin level would be minor due to only 9 percent of the Decision Area being affected.

Impacts from WSRs

Implementation of the Wallowa, Grande Ronde, and Powder River WSR Management Plans would continue under the No Action Alternative, which would ensure that these rivers' free-flowing condition, water quality, and outstandingly remarkable values would be protected. Following such plans would directly and indirectly benefit water resources along these rivers, resulting in localized, moderate, beneficial impacts. Impacts at the Decision Area level would be minor due to the limited area protected.

The 2.6 mile section of Joseph Creek that was determined suitable for inclusion into the National WSR system would receive interim protection.

The Grande Ronde and Wallowa Rivers are heavily used by rafters and have no limits on the number of passengers on boats and rafts. This heavy use has a negligible to minor, localized, adverse effects on the riparian areas and water quality where overuse occurs.

Impacts Common to all Action Alternatives

Impacts from Fires and Fuels Management

Impacts from prescribed burning or use of wildland fire would be similar to those described under the No Action Alternative, although the magnitude of impacts would vary under the action alternatives depending on other resource needs (e.g., juniper treatments or timber sales).

Alternative 1

Impacts from Water Resources

Roads

There are approximately 90 miles of road within 100 feet of a perennial stream channel and 133 miles within 100 feet of an intermittent stream channel. Decommissioning, relocating, or improving roads near streams under Alternative 1 would result in long-term, moderate improvements in water quality at the local level, including along the more than 30 miles of streams where PFC ratings are currently being affected by roads. Local effects would be long-term, moderate to major, and beneficial, while impacts at the watershed scale would be only minor to moderate, depending on the number of roads affected in a watershed.

Riparian Management Areas (RMAs)

Impacts from RMAs would be similar to the RHCAs under the No Action Alternative as the protective measures provided and widths for both protected areas would be the same. However, RMAs would cover a larger area than RHCAs, as the latter are only used for anadromous watersheds and where bull trout occur. This would increase the extent of long-term, beneficial impacts on the streams in the Decision Area, and increase intensity of such impacts to moderate.

Restoration and Conservation Watersheds

Under Alternative 1, watersheds with higher ratings would be given preference for additional restoration as funding becomes available. The ranking of the watersheds would be used as a guideline for where BLM could have the greatest influence, but it would not rule out restoration in other watersheds if a need or opportunity presents itself. This would have a moderate beneficial effect on the watersheds that contain large acreages under BLM control. Such watersheds are primarily within the Powder River, Burnt River, and Brownlee Reservoir subbasins. Beneficial impacts to water quality would be long-term and range from moderate to major at the local level, to minor to moderate at the watershed level.

Restoration and Riparian Vegetation

Compared to the No Action Alternative that proposes no stream restoration (although restoration work has occurred on approximately 40 miles of stream over the last ten years), restoration activities would occur on approximately 50 miles of stream over a ten-year period under Alternative 1. In addition, a strong emphasis would be placed on establishing riparian vegetation of the type and age classes at the highest potential for that stream system. Vegetation, particularly trees and shrubs, would help provide shade from solar radiation and thus help lower stream temperatures. Woody vegetation would also increase bank stability, improving the erosion regime and channel condition. Short-term, beneficial impacts would be local and moderate. Long-term, beneficial impacts would be more widespread and moderate to major, depending on the success of the restoration efforts.

Impacts from Soil Resources

Under Alternative 1, RMAs would provide the same protection to soils as described for RHCAs under the No Action Alternative. Impacts from following soil BMPs and SOPs would also be the same as described under the No Action Alternative, with the exception that additional protection would be given to biological crusts.

Alternative 1 would also protect unique soils by requiring that surface-disturbing activities avoid hydric soils, microbial crusts, and highly erosive soils. Such protection would lower erosion levels and reduce potential for sediment delivery to streams, and would help reduce or eliminate those impacts discussed under the No Action Alternative from not protecting these soils. All of these additional protections have a long-term, minor, beneficial effect on water quality at the watershed level.

Additional protections for soils with biological crusts include moderate livestock stocking rates, keeping salt and water away from crusts, and resting areas with biological crusts after wildfire. In addition, analysis of impacts and appropriate mitigations would be required for all use applications such as ROWs where habitat exists for biological crusts. These additional protections of biological crusts would improve erosion levels in these areas and help decrease sediment input to nearby streams. These would have a moderate, beneficial effect in these areas and a minor, beneficial effect at the watershed or subbasin level.

Impacts from Vegetative Communities

Riparian

Under Alternative 1, stubble height targets of 3 to 4 inches on streams that have stable banks and flow over one quarter of a mile across public lands would improve riparian conditions where this height was not being met. The stubble height requirement of 6-8 inches for more sensitive streams would lead to a short-term, minor, but widespread, improvement in riparian conditions.

Long-term impacts would be beneficial and moderate. This would improve 113 miles (97 percent) of the 117 miles of stream channels presently not meeting rangeland health standards (not at PFC or upward trend) where livestock was listed as a factor (20 percent of channels surveyed did not list a management cause). This would leave only 4 miles of stream that does not meet the one quarter mile criteria, which would be less likely to receive specific management to move them towards PFC to meet rangeland health standards. However, changes in seasons of use and changes in numbers could still be used to improve riparian areas. Considering that 63 percent of those streams not meeting rangeland health standards would be improved, overall beneficial impacts would range from moderate to major, particularly in the Powder River and Burnt River subbasins where many of the streams are not meeting rangeland health standards.

Setting a maximum browse to 30 percent for woody vegetation would result in minor to moderate improvements in riparian conditions where woody vegetation was present along streams. This setting is probably too low to allow the woody vegetation to reach its site potential. However, when combined with the stubble height target, there are likely to be large improvements in channel stability and the sediment regime that would result in long-term, moderate improvements at the local and watershed scale.

Uplands

Under Alternative 1, timing of grazing would be changed from summer or fall grazing to spring grazing in pastures with annual grasses. This would lead to less grazing pressure on the riparian areas along 3 to 4 miles of streams in these areas, leading to moderate improvements in the condition of these streams. Impacts would be limited to the Powder River subbasin.

Seeding 1,500 to 2,000 acres over the life of the RMP to return annual non-native grasslands into native grasslands would improve erosion control due to the greater stability of perennial versus annual grasses. There could be minor to moderate, adverse impacts if any ground disturbing activities, such as seed drilling or burning for site preparation, occurred due to the potential for increased erosion and subsequent sediment transport to streams. However, such impacts would be localized and short-term, until vegetation reoccupies the site. In the long term, the increased stability from perennial grasses would lower the erosion rates and potentially lower the movement of sediment to streams in treated areas. These beneficial, long-term impacts would be minor to moderate at the watershed level and would more commonly be experienced in the Powder River and Burnt River subbasins.

An average of 500 to 2,000 acres would be treated every year where junipers have encroached on other vegetation types. Impacts from treatment would be the same as under the No Action Alternative but the magnitude would change depending on the number of acres treated.

Reducing juniper cover has been shown to increase understory vegetation, improve infiltration and reduce erosion (Miller et al. 2005, Pierson et al. 2007, Peterson and Stringham 2008). Short-term, minor, adverse effects could occur from ground disturbing activities associated with juniper removal. Long-term, moderate, beneficial effects would be expected for water resources

at localized areas due reduced erosion and increased infiltration. Impacts on water resources over the Decision Area could be minor and beneficial, depending upon the number of acres treated.

Impacts from Invasive Plants and Noxious Weeds

Impacts would be similar to the No Action Alternative in many cases. The differences are discussed below.

Compared to the No Action Alternative, EDRR would be used more extensively under Alternative 1 in areas with new infestations. There could be local short-term, minor, adverse effects from removal of groundcover where treatment occurred. However, this tool would increase the effectiveness of treatment by catching new infestations before they spread to wider areas. This would give added protection to groundwater by treating smaller infestations so there would be less risk of herbicide entering groundwater. Where treatments occurred near water, beneficial impacts would range from minor to moderate in the long term.

Active restoration would occur where natural recovery was unlikely. Where this occurs near water, it would increase the effectiveness of treatment and provide a minor to moderate, beneficial effect by decreasing erosion and allowing for an increase of native riparian vegetation.

Impacts from Fisheries

All management actions to improve aquatic habitat also contribute to improving water quality and stream bank stability. Improving aquatic, riparian, and wetland habitats is a goal set for fisheries under Alternative 1. The Baker ARMS would be implemented to support this goal, which would replace PACFISH and the Inland Fish Strategy (INFISH; see Appendix 2.2). Under Alternative 1, RMAs set by ARMS would have the same buffers as PACFISH, which would result in the same minor to moderate, beneficial effects. Under ARMS, the watersheds within the Decision Area would be divided into Conservation and Restoration watersheds to help decide where restoration work could be most effective. Beneficial impacts in the treated restoration watersheds would range from minor to moderate.

Under Alternative 1, the management goal for restoration watersheds would be to restore or improve habitat conditions where biological and physical processes and functions do not reflect natural conditions due to cumulative and/or legacy effects of past land management actions or natural disturbances. The subbasins with the majority of the restoration watersheds are the Brownlee, Powder River, and Burnt River, which encompass the majority of public lands in the Planning Area. Prioritizing these watersheds would have long-term, minor to moderate, beneficial effects at the subbasin level, and a moderate, beneficial impact at the watershed level.

Exclosures would be maintained and new ones built as needed for similar effects as under the No Action Alternative. Hydropower would be restricted in fish habitat under Alternative 1. Where

this occurred, it would provide local, moderate to major, beneficial effects to the sediment and flow regime

Overall, the effects from fisheries under Alternative 1 would be long-term, moderate, and beneficial at the subbasin scale, with the largest beneficial impacts occurring in the Brownlee Reservoir, Powder River and Burnt River subbasins.

Impacts from Wildlife

Decommissioning roads adversely effecting wildlife would have localized, long-term, minor to major benefits to water quality of nearby streams, depending on the connectivity of roads and streams as roads connected to streams feed sediment directly to the stream (this would be most common where roads closely parallel streams or have many places where they cross streams) and roads without connectivity are more neutral as far as water quality is concerned. On a subbasin scale effects are probably minor to negligibly beneficial due to the small number of roads where this would occur. Maintaining or restoring riparian habitat for wildlife would have a minor to moderate, beneficial impact on water quality.

Impacts of restoring non-native grasslands, restoring or improving Wyoming big sagebrush communities, and rehabilitating habitat impacted from livestock grazing are all discussed in Impacts from Vegetative Communities above. While localized, moderate benefits could occur from wildlife management, impacts at the watershed scale would be minor.

Impacts from Forestry and Woodland Products

Under Alternative 1, treatments of forested areas to improve tree vigor and Forest Health would occur on an average of 500 acres a year, which would result in minor disturbances at treated sites and short-term elevated sediment movement from soil disturbance, primarily where roads either cross or parallel streams. Given the added protection of RMA buffers, minimal elevated sediment movement to streams would be expected from harvest activity, causing short-term, adverse impacts that would range from negligible to minor. Accelerating the growth of the diameter of riparian stands would assist in speeding up the creation of late-successional conditions and provide for a faster development of large woody material sources for instream habitat. Long-term improvements in stream function could occur from larger trees, providing larger wood to streams that adds habitat complexity, and generally improves pool habitat and traps gravels. Healthier stands that have been thinned are less prone to disease and thinning can reduce the intensity of wildfires. This would have a minor, beneficial effect by reducing wildfire risk at the watershed scale (discussed under Impacts from Fuels and Fire).

Impacts from Livestock Grazing

As discussed under the No Action Alternative, grazing can affect bank stability due to trampling and affect water quality due to the addition of fine sediment. Presently 117 miles of stream do

not meet PFC or show an upward trend (same as not meeting rangeland health standards), at least partially due to livestock grazing. This is discussed under Impacts from Vegetation.

Impacts from implementation of Rangeland Standards and Guidelines (BLM 1997) would be the same as described under the No Action Alternative.

Reducing grazing by seven percent of the area and approximately 11,000 AUMs (approximately a 25 percent reduction) compared to the No Action Alternative would decrease grazing pressures in some pastures. Changes to grazing systems where the rangeland health standards are not being met would occur over a 10-year period with a mandatory 5-year rest period if rangeland health standards are not met for two monitoring cycles. Impacts from such changes in grazing systems would be negligible to minor over the short term, but moderate and beneficial over the long term.

Exclosures under Alternative 1 could be grazed if streams are improved enough to meet PFC. Localized, minor, adverse impacts could occur under this scenario due to removal of riparian vegetation and trampling of the banks.

Impacts from Minerals

Impacts would be similar to those described under the No Action Alternative, with the following exception that reclamation of all disturbances created by mining would be required under Alternative 1, which would have a negligible to moderate, local, beneficial effect on water quality, depending on how close the site is to a stream. No surface occupancy (NSO) would be allowed in ACECs, which would have a negligible to minor, beneficial effect.

Impacts from Recreation

OHV use would continue in the Virtual Flat area for the same impacts discussed under the No Action Alternative. Other OHV impacts are discussed under Travel and Transportation.

Impacts from facilities would be similar to the No Action Alternative, although there would be an additional emphasis on upgrading facilities to promote resource protection. This would improve existing water quality problems caused by erosion and subsequent sedimentation around degraded or substandard facilities. Because facilities are limited within the Decision Area, beneficial impacts would be minor to moderate and localized. Beneficial impacts would be negligible at the watershed level.

Overall, the management actions under Alternative 1 would lead to localized, minor, short- and long-term, beneficial effects due to the focus on resource protection/protecting water quality.

Impacts from Travel and Transportation

The types of impacts from cross-country motorized use would be similar to those discussed under the No Action Alternative; however, the intensity and extent of adverse impacts would be greatly reduced because off road motorized use would be confined to 1 percent of the Decision Area, compared to 67 percent of the land being open to cross-country use under the No Action Alternative. Any adverse impacts possibly caused by designations under Alternative 1 would be limited to the Virtue Flat OHV Play Area. Twenty percent of the Decision Area would be closed to motor traffic. This would be a major beneficial impact to local streams in these areas. Seventy-nine percent of the Decision Area would require that OHVs stay on designated roads and trails. Beneficial impacts at the local level where motorized use is popular and close to streams would be major, while beneficial impacts would range from minor to moderate across the Decision Area.

Impacts from Lands and Realty

Alternative 1 removes 69,733 acres from use as ROWs for wind energy or other authorized use, three times the amount under No Action. This would keep disturbances more confined to certain areas, such as the I-84 corridor, and other presently undisturbed areas would remain undisturbed. The I-84 corridor would be confined to a width of 3,500 feet in order to concentrate disturbances in this area. Compared to the No Action Alternative, these requirements would result in a long-term, minor to moderate, beneficial impact at the watershed scale.

Mineral withdrawal would be pursued on approximately 20,096 acres under Alternative 1, which would be about 6 times the amount withdrawn under the No Action Alternative. This would protect these areas from additional ground disturbance and resultant adverse impacts to water quality from mining activity. Local impacts would be beneficial, long-term, and major, but only minor to moderate at the watershed scale.

Impacts from ACECs

Impacts would be similar to those discussed under the No Action Alternative, although the extent of impacts would be greater under Alternative 1, due to an additional 35,603 acres that would be managed as ACECs under Alternative 1. The Oregon portion of the Lower Grande Ronde would not be designated as part of an ACEC because it would be protected by its status as a WSR under the Wallowa and Grande Ronde Rivers Final Management Plan/EA (BLM et al., 1993). Long-term, beneficial impacts within the ACECs would remain minor to moderate, while beneficial impacts across the entire Decision Area would be moderate, due to the 19.5 percent of public lands that would be under ACEC designation (compared to 11 percent under the No Action Alternative).

Impacts from WSRs

Impacts would be similar to those identified under the No Action Alternative, with the exception that impacts would be more extensive as protection would also be offered to the 2.6-mile section of Joseph Creek that was deemed eligible to be included in the National WSR system. Impacts across the entire Decision Area would remain minor.

Impacts from limiting the number of people within each motorized boat or raft on the Wallowa and Grande Ronde rivers are discussed under Impacts from Recreation.

Alternative 2

Impacts Same as under Alternative 1

- Impacts from Minerals
- Impacts from Invasive Plants and Noxious Weeds

Impacts from Water Resources

Roads

Given the commodity focus of Alternative 2, there would likely be an increase in traffic, which would, in turn, lead to an increase in the production of sediment (Luce and Black 2001). To mitigate this impact, roads within RMAs used for commodity production would be improved to remove stream/road connectivity, which would prevent additional adverse effects caused by increased traffic.

RMAs

Compared to Alternative 1, Alternative 2 proposes the same RMAs for perennial streams but smaller RMAs for lakes, wetlands, and intermittent streams. Impacts would be similar to those identified under the No Action Alternative (for RHCAs), with the exception that beneficial impacts may be reduced along lakes, wetlands, and intermittent streams due to the reduction of 34 to 67 percent of acreage that would be within RMAs. The RMA widths would be adequate to protect streams from an increase in fine sediment from management activities. Proximity of ground disturbance to streams is an important factor controlling sediment delivery (Rashin et al. 2006). A research study on stream buffers for timber sales found that of 212 erosion features within 10 meters (approximately 30 feet) of a stream, 67 percent of the features delivered sediment to the stream. Of 193 erosion features greater than 30 feet from a stream, 95 percent did not deliver sediment to the stream (ibid.). Consequently, RMA widths of 50 feet for ponds wetlands, lakes, and intermittent priority streams would be sufficient to protect water quality; however, the 25-foot widths proposed for intermittent non-priority streams would be slightly less successful at controlling sediment delivery to these streams.

Restoration and Conservation Watersheds

Impacts would be the same as discussed under Alternative 1.

Restoration and Riparian Vegetation

Approximately twenty miles of stream restoration would occur every decade to mitigate effects from higher commodity use. This would have a smaller positive effect than Alternative 1 because the mileage for restoration would be half that of Alternative 1. There would be no specific management action to improve riparian vegetation under this alternative. Minor, positive effects would be similar to those listed in Alternative 1, but would impact fewer streams.

Impacts from Soil Resources

Impacts from soil resources would be the same as discussed under Alternative 1, with the exception that biological crusts would experience the same impacts as described under the No Action Alternative due to lack of management protection.

Impacts from Vegetative Communities*Riparian*

Impacts would be similar to Alternative 1, although not as widespread as riparian stubble height targets would only occur where streams had at least a mile across public land. Compared to Alternative 1, stubble height targets would be an average of 2 inches shorter under Alternative 2, which would reduce the overall beneficial impacts to minor.

This would lead to the improvement of 86 miles (74 percent) of the 117 miles of stream presently not meeting rangeland health standards due to livestock, which leaves approximately 31 miles of stream without the protection of stubble height monitoring, compared to 4 miles under Alternative 1. Utilization effects would be the same as discussed under Alternative 1.

Overall minor to moderate improvements to stream stability would occur, but it would be less likely that improvements to riparian vegetation would lead to improvements in stream temperatures across the Decision Area.

Uplands

Impacts from the time of grazing annual grasses would be the same as discussed under Alternative 1.

Impacts from seeding 1,500 acres of non-native annuals would be similar to Alternative 1, although it would be less widespread due to potentially fewer acres seeded.

Juniper treatments would be variable and depend on the need to improve range or other commodity production. It would be expected that fewer acres would be treated than under Alternative 1. Therefore, beneficial effects from treatment would be somewhat less than those discussed under Alternative 1.

Impacts from Fisheries

Except for differences resulting from smaller RMAs for intermittent streams in non-priority watersheds, impacts from implementing ARMS would be similar to those described under Alternative 1.

The restoration focus under Alternative 3 would be on areas with recreational fisheries, which would not address restoration needs of some of the smaller streams and streams not heavily used as recreational fisheries. This would have a local, minor to moderate, adverse impact to these streams from the lack of restoration. Impacts from exclosures would be the same as those discussed under Alternative 1.

Hydropower under Alternative 3 would be encouraged where it would enhance recreational fisheries. This would have a locally moderate adverse effect to the sediment regime and flow regime of the stream affected. New dams would potentially have a localized, moderate impact to stream temperature and summer flows.

Overall, beneficial impacts from fisheries management under Alternative 3 would remain minor to moderate.

Impacts from Wildlife

Impacts would be similar to those described under Alternative 1, with the exception that fewer roads would be candidates for decommissioning due to the commodity emphases of Alternative 2. Beneficial impacts would be negligible to minor at the watershed scale.

Impacts from Forestry and Woodland Products

Impacts would be similar to those discussed under Alternative 1, with the exception that Alternative 2 lacks the management requirement to protect late-seral stands, which would eliminate the long-term, beneficial effect caused by providing larger wood to streams.

Impacts from Livestock Grazing

Adverse impacts would be similar to those discussed under Alternative 1, but would occur on more acreage (2 percent more), with potentially more AUMs, and fewer grazing restrictions.

Impacts from managing exclosures would be the same as discussed under Alternative 1.

Impacts from Recreation

While impacts would be similar to those described under Alternative 1 from upgrading facilities, Alternative 2 also calls for an increased expansion of facilities, which would increase the extent and intensity of localized adverse impacts. Such increases could be localized, minor to moderate, and long-term.

Other impacts would be similar to those described under Alternative 1.

Impacts from Travel and Transportation

Impacts would be similar to those discussed under Alternative 1. However, adverse impacts from roads open to OHV use would be slightly more intense and extensive as 5 percent of the Decision Area would be open to cross-country travel under Alternative 2, which would open both Denny Flat and Sunday Hill in addition to the Virtual Flat OHV Play Area. Alternative 2 proposes slightly less than half as many acres closed to motorized use compared to Alternative 1, which would reduce the intensity and extent of beneficial impacts (9 percent of the Decision Area). Limited access would occur on 84 percent of the Decision Area compared with 79 percent for Alternative 1, resulting in a minor reduction in beneficial impacts compared to Alternative 1. Alternative 2 also places more emphasis on opening road for commodity developments. These differences would lead to long-term, minor to moderate, adverse impacts at the watershed scale compared to Alternative 1.

Impacts from Lands and Realty

Alternative 2 would have the smallest number of acres designated as exclusion acres (25,236) for all land use authorizations of the action alternatives. The I-84 energy corridor would be over a mile wide under Alternative 2, which is the widest proposed under all the alternatives, and, therefore, would be more likely to impact streams. Avoidance areas of 32,403 acres would receive some protection. Overall, beneficial impacts would be reduced in extent compared to Alternative 1.

Impacts from land closed to mining would be the same as described under the No Action Alternative.

Impacts from ACECs

Alternative 2 proposes the fewest acres under ACEC protection among the alternatives (13,734 fewer acres than the No Action Alternative). As a result, the extent of long-term, beneficial impacts experienced at the Decision Area level would be slightly reduced compared to the No Action Alternative, although they would remain minor. In addition, many of the ACECs that would remain closed to grazing under the No Action Alternative would be opened to grazing under Alternative 2. This would negatively affect water quality due to the removal of riparian vegetation and trampling of banks that destabilize the channel and add fine sediment to the

affected stream. These changes would reduce the intensity of beneficial impacts at the local level to minor.

Impacts from WSRs

Impacts would be similar to those identified under the No Action Alternative.

Impacts from limiting the number of people within each motorized boat or raft on the Wallowa and Grande Ronde rivers are discussed under recreation.

Alternative 3

Impacts Same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Minerals
- Impacts from Forestry and Woodland Products
- Impacts from Recreation
- Impacts from WSRs

Impacts Same as under Alternative 2

- Impacts from Fisheries

Impacts from Water Resources

Roads

Improving roads would focus on areas important to recreation. This narrow focus would have less beneficial effect to streams than under Alternative 1, which would reduce the intensity of beneficial impacts to minor at the watershed level.

RMA's

Impacts would be the same as discussed under Alternative 2.

Restoration and Conservation Watersheds

Impacts would be the same as discussed under Alternative 1.

Restoration and Riparian Vegetation

Forty miles of stream restoration would occur under Alternative 3, which would be 10 miles less than is proposed under Alternative 1. The focus would be on streams and riparian areas that

receive the most fishing pressure versus streams identified as needing restoration for other reasons. In these areas, trails degraded from use would be upgraded to fix sediment problems and instream work would focus on improving recreational fisheries. As a result, management actions proposed under Alternative 3 would be less protective of water resources than Alternative 1, with a corresponding drop in beneficial effects due to fewer miles of proposed restoration and a narrow focus on recreation.

Impacts from Soil Resources

Impacts would be the same as described under Alternative 1, with the exception that biological crusts could be impacted in newly designated OHV use areas as such areas would not be protected. Adverse impacts would be long-term, localized, and range from minor to moderate.

Impacts from Vegetative Communities

Riparian

Impacts would be similar to those described under Alternative 1, albeit reduced in intensity and extent due to variable riparian stubble heights targets only occurring where the streams flowed for at least one half of a mile across public lands. Overall, the long-term, beneficial impacts would range from minor to moderate. Impacts from utilization rates would be the same as described under Alternative 1.

Uplands

Impacts from the timing of grazing annual grasses would be the same as discussed under Alternative 1.

Impacts would be similar to those described under Alternative 1, although not as widespread due to only 1,000 acres proposed for seeding under Alternative 3, which is the least acreage proposed for seeding among the action alternatives. As a result, beneficial impacts would be only minor.

Impacts from juniper treatments would be the same as discussed under Alternative 1.

Impacts from Wildlife

Impacts would be similar to those discussed under Alternative 2.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative 1, although the intensity of adverse impacts would be slightly reduced due to slightly fewer acres available for grazing (a 10 percent decrease) and fewer AUMs (a 15 percent decrease).

Impacts from Travel and Transportation

Adverse impacts from public lands designated as open to OHV use would be the same as those discussed under Alternative 2. Beneficial impacts from areas closed to motorized use would be closer to those identified under Alternative 1, albeit slightly less extensive as 4,633 fewer acres (9 percent) would be designated as closed compared to 19 percent under Alternative 1.

Impacts from Lands and Realty

Impacts would be similar to those discussed under Alternative 2, with the exception that impacts from exclusion area designations would be more extensive due to 15,264 additional acres that would be designated as exclusion areas. Beneficial impacts would be long-term and minor at the subbasin scale.

Withdrawal from mining would be pursued on less than 1/3 the acres compared to Alternative 1. Impacts would be the same as Alternative 1 where they occurred, but much less widespread.

Impacts from ACECs

Impacts would be comparable to those identified under the No Action Alternative, as the number of acres protected is similar. The intensity of both localized and Decision Area-wide impacts would remain relatively the same as under the No Action Alternative.

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife
- Impacts from Recreation
- Impacts from Minerals

Impacts from Water Resources

Roads

Impacts would be the same as discussed under Alternative 1.

RMAs

Compared to Alternative 1, Alternative 4 would increase RMAs for perennial non-fish bearing streams by 25 to 34 percent. The additional protection in these areas could result in a local negligible to minor increase in beneficial effects to riparian vegetation and water quality.

Restoration and Conservation Watersheds

Impacts would be the same as discussed under Alternative 1.

Restoration and Riparian Vegetation

Impacts from RMAs and stream restoration would be similar to those described under Alternative 1, although impacts would be more widespread due to the increased size of RMAs and the miles of stream proposed for restoration, which would be the most among the alternatives. As a result, water resource management proposed under Alternative 4 would result in moderate to major, beneficial impacts over the long term, which would be the greatest positive impact to water resources among the alternatives.

Alternative 4 would restore 80 miles of stream every ten years, a 30 mile increase over Alternative 1. It would allow for aggressive instream work, which could result in minor to moderate, short-term, adverse effects at the local level due to the use of heavy equipment around streams and the resulting short-term addition of sediment. Long-term benefits to channel form and stream complexity would outweigh such short-term, adverse impacts. Benefits would occur at the local to watershed scale.

Impacts from Soil Resources

Impacts would be similar to those discussed under Alternative 1, with the exception that biological crusts would experience more benefits from only allowing light stocking rates for livestock grazing in areas with biological crusts. Beneficial impacts would be moderate at the local level and in some watersheds with a high component of sagebrush. Beneficial effects would be minor at the subbasin scale due to the limited number of acres impacted.

Impacts from Vegetative Communities*Riparian*

Impacts would be similar to Alternative 1, except that beneficial impacts would increase in range and intensity due to increasing stubble height targets to 6 to 8 inches for all stream types where 1/8 of a mile of the stream crosses public land. Targets are applicable where over 1/8 of a mile of stream flowed across public lands. This would result in improvements along 16 miles of the 117 presently not meeting rangeland health standards from effects of grazing, which would be an increase of 3 miles compared to Alternative 1 (99 percent). This would have a moderate to major, beneficial effect. Forage utilization rates would be set for light use (21-40 percent) which would have a minor to moderate, beneficial effect at the watershed and subbasin scales.

With the light utilization level and high stubble height target, improvements in riparian vegetation would occur more quickly. There would be both short and long term improvements

in riparian vegetation and channel stability. Long-term improvements in channel shading would occur, leading to improvements in the temperature regime of streams within the Decision Area.

Upland

Impacts would be similar to Alternative 1, but with the potential for an increase in the number of acres targeted for the restoration for annual grasslands, which would increase the intensity of impacts.

Impacts of juniper treatments would be similar to Alternative 1 with potential for an increase in treatment acres, which would increase the intensity of impacts.

Impacts from Fisheries

Impacts from implementing ARMS would be similar to Alternative 1, with the exception of differences due to expanded RMAs (see Impacts from Water Resources).

Impacts from discouraging hydropower where native fish occur would be similar to those discussed under Alternative 1.

Impacts from Forestry and Woodland Products

Impacts would be similar to those discussed under Alternative 1, except that impacts would be slightly more extensive under Alternative 4 due to treating an additional 250 acres of forest and woodlands per year to improve overall tree vigor.

Impacts from Livestock Grazing

There would be a drop of over 50,000 acres grazed and over 10,000 AUMs under Alternative 4 compared to Alternative 1. The areas removed from grazing are along the Grande Ronde River, steep areas in the Brownlee Reservoir Subbasin, and some native vegetation pastures in the Powder River Subbasin. Since riparian habitats in these areas are currently in generally good condition, removing livestock grazing would have minor to moderate, beneficial effects at the watershed scale.

Overall, the lighter grazing from the drop in AUMs combined with changes in timing and intensities of grazing under Alternative 4 would improve riparian condition over the long term for a moderate beneficial effect to water quality, particularly the sediment regime.

The mandatory pasture rest period proposed under Alternative 4 for the life of the RMP versus for only 5 years under Alternative 1 would have a moderate beneficial effect for these localized areas because these areas would have a longer rest period to improve the size and vigor of riparian vegetation and potentially lead to improvement water quality.

Exclosures would not be grazed under Alternative 4, which would result in a local minor beneficial effect to water quality because it would provide continuous protection to riparian vegetation in these areas.

Impacts from Travel and Transportation

Impacts from open designation are the same as discussed under Alternative 1. Thirty-nine percent of the Decision Area would be closed under this alternative, more than twice that of Alternative 1, resulting in the same benefits with a greater magnitude due to the larger area.

Impacts from Lands and Realty

There are 74,971 acres are exclusion areas for land use authorizations compared to 71,052 acres under Alternative 1, resulting in a slight increase in beneficial effects from the increased acres. These changes include an additional 88,116 acres withdrawn from wind development in the Wyoming big sagebrush to protect certain sage-grouse leks with a 5 mile wind development buffer. This provides a long-term, minor to moderate, beneficial impact in comparison to Alternative 1 due to the additional protected acreage.

Impacts due to protection through mining withdrawals would be the same as described under Alternative 1.

Alternative 5

Impacts Same as under Alternative 1

- Impacts from Minerals
- Impacts from Travel and Transportation
- Impacts from ACECs
- Impacts from Recreation
- Impacts from WSRs

Impacts Same as under Alternative 4

- Impacts from Fisheries
- Impacts from Soil Resources

Impacts from Water Resources

Impacts would be similar to those described under Alternative 4, with the exception that allowing only low-impact instream work would reduce short-term, adverse impacts to negligible under this alternative.

Impacts from Vegetative Communities*Riparian*

Impacts from stubble heights targets would be the same discussed under Alternative 4, with increased beneficial impacts from not allowing grazing on 303(d)-listed streams or tributaries within the same pastures. This would lead to increased riparian vegetation and stream channel stability on the 303(d)-listed streams and on the tributaries found in these pastures. The large improvements expected in riparian vegetation would have a moderate to major, beneficial effect on sediment delivery and stream temperature. The Powder and Burnt rivers would have at least a minor improvement in E. coli numbers. Removal of grazing on 303(d)-listed streams would have both a short- and long-term, major, beneficial effect in the local areas and a moderate, beneficial effect at the watershed scale.

Upland

Impacts would be the same as Alternative 4 except restoration on annual grasslands would not occur. This would have a long-term, moderate to major, adverse effect on these local areas, and a minor to moderate, adverse effect at the watershed scale.

Impacts from juniper treatments would be similar to those described under Alternative 1, with the exception that impacts would not be as widespread as juniper restoration would be limited to riparian areas and in Wyoming big sage habitats. Treating juniper in riparian areas could have local, minor to moderate, short-term effects from the removal of stabilizing vegetation and addition of fine sediment to streams. This would result in long-term, minor to moderate, beneficial impacts at the watershed scale.

Impacts from Invasive Species

Impacts would be the same as described under Alternative 1, with the exception that the emphasis would be on using non-herbicidal methods prior to using herbicide to control invasive plants. While this less aggressive technique would reduce the intensity of short-term impacts, it would also result slower restoration at certain sites. Overall, differences in impacts from Alternative 1 would be minor at to moderate the local level, and negligible to minor at the watershed scale.

Impacts from Wildlife

Impacts under Alternative 5 would be similar to those discussed under Alternative 1, with the exception that less aggressive methods of restoration would occur. This would lead to slower improvements in many areas, and make improvements in non-native annual grasses less likely. As a result, the elevated levels of erosion identified under the No Action Alternative would continue under Alternative 5, resulting in localized, minor to moderate, adverse impacts.

Impacts from Forestry and Woodland Products

The types of impacts would be similar to those described under Alternative 1; however, the intensity and extent of impacts would be greatly reduced due to treating only half the number of acres that would be treated under Alternative 5. The lack of commercial harvest would eliminate adverse short-term impacts related increased traffic along haul roads. In addition, long-term improvements in ecosystem health would not be expected due to the small number of acres treated.

Impacts from Livestock Grazing

Under Alternative 5, grazing would occur on the least number of acres with the lowest AUMs available among the alternatives (with the exception of Alternative 5a). Grazing would not be allowed on 139,041 acres where 303(d)-listed streams flow through the allotments, which would be a removal of approximately 30 percent of the acres grazed under the No Action Alternative. Most of the allotments removed would be in the Powder River, Burnt River, and Brownlee Reservoir area, which are also the areas where streams are currently not meeting PFC. Not grazing these would be expected to improve the stability of the streams, as well as allowing for recovery of the riparian vegetation to provide additional shading to the streams from the increased shrub component. Both short- and long-term, beneficial impacts along 303(d) streams would be major.

Impacts from Lands and Realty

There are 103,318 acres in exclusion areas under this alternative, more than a 30 percent increase compared to Alternative 4. The lek protection from wind development gets the same 5 mile buffer as Alternative 4, but would be required for all sagebrush habitat within an area that is three times larger. This would provide an additional, long-term, moderate benefit at the subbasin scale over the benefits discussed in Alternative 4.

Impacts from exclusions from mining would be the same as discussed under Alternative 1, but would be applied at about four times the area.

Impacts from ACECs

This alternative has the most acreage (93,991 acres, 22 percent of the Decision Area) within ACECs. This would be almost twice the acres found under the No Action Alternative, resulting in a long-term, minor to moderate, beneficial impact from management as an ACEC.

Alternative 5a**Impacts from Vegetative Communities**

Under Alternative 5a, no grazing would be authorized, so management directions pertaining to grazing would not be available. Eliminating grazing could lead to increased vegetative cover and reduced erosion or sedimentation, resulting in beneficial impacts to water quality. As a result, long-term, major, beneficial impacts to riparian vegetation and water quality would occur.

In upland sagebrush communities, increased vegetation could lead to greater fire intensity, an increase in non-native annuals, and increased erosion, all of which would result in adverse impacts to water quality.

Impacts from Livestock Grazing

No domestic livestock grazing would be allowed in the Decision Area under Alternative 5a. Benefits would be similar to those discussed under Alternative 5 but more widespread. Riparian vegetation would reach its site potential and stream banks would stabilize most quickly under this alternative, resulting in both short- and long-term, widespread, major, beneficial effects to riparian vegetation, and potentially to water quality.

Eliminating livestock grazing under Alternative 5 would contribute to increased fine fuels, which could lead to more frequent and larger wildfires and a subsequent increase in non-native grasses. Non-native grasses tend to promote a more frequent fire regime which could result in an associated loss of vegetation and increase in erosion, thereby resulting in a local, minor to moderate, negative impacts. This effect would be dependent on the extent and frequency of fires in these areas.

c. Cumulative Impacts

Table 2.2 in Chapter 2 gives numerical differences in alternatives. It is the cumulative influence of these changes in many resources that have collectively significant effects over a period of time.

No Action Alternative

Past actions within the Planning Areas include farming, cattle grazing, mining, logging, and road and town building. Overstocking and yearlong grazing had a large negative impact on stream conditions and contributed to the destabilizing of stream channels, as well as to occasional down cutting of stream channels and increased width to depth ratios. The use of streams for irrigation has lowered summer flow levels in many areas and increased stream temperatures. These activities were more extensive and more intense in the past. This has resulted in major adverse effects to water quality, quantity and channel stability. All of these activities occur in the present but generally follow local, state, or federal guidelines and BMPs to reduce adverse effects.

Extensive beaver trapping has led to the loss of channel complexity. Many of the major rivers have been dammed, which has affected the timing and volume of flows, which in turn affects channel morphology.

Changes in management over the last 15 years are improving conditions on many private agricultural lands. Erosion has been reduced by 55 percent on private land in the Powder River subbasin (NRCS 2006). The National Resource Conservation Service (NRCS), soil and water conservation districts, Oregon Department of Fish and Wildlife (ODFW), and watershed councils all work cooperatively with land owners to improve stewardship of lands. Sample projects in the Powder River/Brownlee Dam subbasins include:

- Off-stream water developments for livestock
- Confined Animal Feeding Operation improvements
- Soil moisture and weather measurements for irrigation management
- Irrigation pipelines for water and energy conservation
- Wetland and stream rehabilitation for wildlife and water quality improvements

Although such projects improve water quality impairments caused by agricultural practices, many of the improvements on private land depend on voluntary changes. As a result, adverse impacts to water quality and stream health continue in many areas.

All present actions on land outside of land managed by BLM are the same under all alternatives. Present actions on all management areas, private or government, still affect water resources. They include agriculture practices, past and present grazing, logging, mining, roads, buildings, fires and invasive plants and noxious weeds and their treatment.

The US Forest Service (USFS) is the government agency that controls much of the land within the Planning Area, primarily at higher elevations. Many of the USFS managed lands are in forest versus the large amount of rangeland under BLM management. The USFS use similar BMPs to mitigate negative effects from management as BLM and follow the same laws and regulations that protect water resources and are leading to slow improvements in channel and riparian condition and their associated water quality. The Blue Mountain Forests are undergoing a management plan revision at this time in order to update management direction.

Reasonably foreseeable future impacts include the continuation of all present impacts. It is likely that populations would increase over time with additional development occurring on private land. Wind development is a recent activity that is expanding in the Decision Area and should to continue to expand. Wind development leads to increased road miles and other land disturbances.

The BLM's ability to influence future condition of watersheds is limited by the scattered and minority public land ownership in most watersheds. Impacts to water resources on public lands are heavily impacted by activities that occur on lands under other ownerships.

Working with other landowners is a priority under all alternatives to improve water quality. While impacts from BLM management would change by alternative, the expansion of ROWs, wind energy developments, and other activities that expand the road network would continue under all alternatives. These potentially disturb land near streams and can add fine sediment to streams.

In the long-term, streams on public land that appear on the 303(d) list of impaired streams or streams not meeting rangeland health standards for hydrologic function would slowly improve as grazing practices would be adjusted on a site-by-site basis to achieve such improvements. This would lead to long-term, minor improvements in water quality. Moderate improvements to the sediment regime and channel conditions would be expected, but it would be unlikely that changes would be dramatic enough to have more than minor, beneficial impacts on stream temperatures.

As TMDLs and WQMPs are written for impaired watersheds, the BLM would be required to write a Water Quality Restoration Plan (WQRP) for improving water quality to achieve water quality standards and meet beneficial uses. When these WQRPs are implemented, direction would be in place for improving water quality in these subbasins; however, because there are no specific directions provided under the No Action Alternative to improve stream conditions, particularly riparian vegetation, changes to riparian vegetation and water quality would be slower compared to the action alternatives. A lack of specific direction to deal with riparian vegetation or roads within riparian areas under the No Action Alternative would delay improvements to bank stability and water quality. Most of the Decision Area would be open to cross-country OHV use. It is reasonably foreseeable that as the population continues to grow, OHV use will expand. This could result in more land disturbance and higher potential for the increased movement of sediment into streams.

As TMDLs are written and implemented, more requirements to improve and protect water quality and the associated riparian and channel condition be in place. This would lead to slow improvements in water quality over time.

In summary, both positive and negative effects are seen with this alternative. Long-term improvements in riparian conditions and water quality would be expected in many areas due to slow changes in grazing systems to meet rangeland health standards. However, the long-term increased ground disturbance from ROWs and the open land use for OHVs would counter this improvement, due to negative impacts from increased roads and associated increases in sediment. No short-term benefits would be expected under this alternative, but there would be long-term, negligible to minor, beneficial impacts.

Alternative 1

The same requirements for improvement of streams within TMDL-listed watersheds and for meeting beneficial uses would occur under this alternative as under the No Action Alternative. Additional moderate short- and long-term improvements in water quality would be expected under this alternative due to changes in management of livestock, riparian stubble height requirements differing from upland standards, closing much of the area to cross-country travel, the addition of stream miles for restoration, and the potential improvement or decommissioning of roads impacting streams (see Table 2.2 in Chapter 2 for numerical differences in alternatives). In addition, long-term protection of land by excluding land from the expansion of ROWs and the associated road network would also be important in minimizing stream/road connectivity in order to protect streams from elevated levels of fine sediment.

Fifty miles of restoration of streams and riparian areas would occur over a 10-year period for a minor to moderate improvement in riparian condition. The restoration emphasis across many resources all help with lowering the delivery of sediment to streams and emphasize improving riparian areas, particularly riparian vegetation. Of the 117 miles of stream channel presently not meeting rangeland health standards for hydrologic function due at least partially to grazing 113 miles (97 percent) would be expected to improve due to changes in grazing. The improvement of 32 miles of stream known to be affected by roads would occur from improved road management. Over the long term, water quality would also be expected to improve due to improved riparian vegetation and channel stability. As the Powder River and Burnt River subbasins have the most miles of stream channel not meeting rangeland health standards, these subbasins would receive the most benefit from changes in grazing management.

Due to the beneficial changes in management discussed above, Alternative 1 would result in a moderate to major, beneficial impact to water resources within the Decision Area in the long term. For Brownlee Reservoir, Powder River, and Burnt River subbasins where BLM land is concentrated, changes in management on public lands, in addition to changes on private land, could lead to improved water quality at the subbasin level.

Alternative 2

The same requirements for the improvement of streams within TMDL-listed watersheds and for meeting beneficial uses would occur under this alternative as under the No Action Alternative. Alternative 2 would have additional minor, beneficial impacts in the short term. Furthermore, this would result in moderate, long-term, beneficial impacts to water resources from changes in livestock grazing and road improvements. This alternative would be the least restrictive of the action alternatives in ROW development, mineral withdrawals, and closing of the Decision Area to cross-country traffic from more continued impacts from development (see Table 2.2 in Chapter 2 for differences in alternatives).

This alternative has the least miles (20) of restoration every 10 years. It also has the lowest riparian stubble height requirements and does not monitor stream or riparian condition, unless

there is a mile of stream on federal land, and ignoring many of the streams where BLM manages shorter segments. Eighty-six miles of the 117 miles of stream channel presently not meeting rangeland health standards for hydrologic function would be expected to improve (74 percent). This would leave 31 miles of stream unlikely to improve because they are in reaches of less than a mile. This alternative provides the least improvement other than the No Action Alternative.

Overall, this alternative would lead to long-term, minor benefits to water resources across the Decision Area.

Alternative 3

The same requirements for improvement of streams within TMDL-listed watersheds and for meeting beneficial uses would occur under this alternative as under the No Action Alternative. Changes in grazing, closing much of the area to cross-country travel, and closing parts of the Decision Area to the expansion of ROWs combined would have moderate, beneficial impacts (see Table 2.2 in Chapter 2 for differences in alternatives).

Forty miles of restoration of streams and riparian areas would occur over a 10-year period on streams important for recreational fishing for a minor to moderate improvement in riparian condition.

One hundred and ten miles of stream would be expected to improve due to changes in grazing management (94 percent). Seven miles of stream would not have riparian stubble height requirements and would not be expected to improve. Overall, Alternative 3 would have both short- and long-term, moderate, beneficial impacts to water resources that are similar to, but slightly less than, Alternative 1.

Alternative 4

The same requirements for the improvement of streams within TMDL-listed watersheds and meeting beneficial uses would occur under this alternative as under the No Action Alternative. Alternative 4 has larger changes in grazing, closes more of the area to cross-country travel, and closes more of the Decision Area to the expansion of ROWs than the alternatives discussed above (see Table 2.2 in Chapter 2 for differences in alternatives).

This alternative is similar to Alternative 1, but with a more aggressive restoration focus for many resources and would include 80 miles of stream restoration every 10 years for a moderate long-term improvement in riparian and channel condition. Some minor, short-term, adverse effects could occur from active management within the channel, but their effects would be localized.

One hundred and sixteen miles of known impacted streams would have stubble height requirements (99 percent). Stubble height requirements are the highest and most protective of the action alternatives. Fifty miles of stream restoration would occur every ten years, the most

miles of any alternative (same as Alternative 5). One mile would not be monitored for stubble height and would not be expected to improve.

Overall, Alternative 4 would result in both short- and long-term, major benefits to water resources. Improvements to riparian vegetation would occur more quickly than under Alternative 1.

Alternative 5

The same requirements for the improvement of streams within TMDL-listed watersheds and for meeting beneficial uses would occur under this alternative as under the No Action Alternative. Alternative 5 would have very similar beneficial effects to Alternative 4, although some improvements would occur more slowly due to the reliance on natural processes and less on active restoration. Closing pastures to grazing where 303(d)-listed streams occur would have an immediate and major beneficial impact to riparian vegetation and associated water quality. Overall, Alternative 5 would result in both short- and long-term, major benefits to water resources.

Alternative 5a

Removing livestock grazing from riparian areas would have an immediate major beneficial effect on water resources through the increased growth of riparian vegetation, and the lack of trampling of the banks. Local improvements in *E. coli* contamination would occur; however, it would be unlikely that these changes would be enough to improve water quality on the subbasin level unless positive changes in management occur on the large amount of private land along the main rivers and streams. In the long term, public lands would continue to improve due to the removal of livestock, resulting in effects similar to Alternative 5, but occurring more rapidly.

However, in some areas, removal of livestock could increase fuel loading the point where future fires would have higher intensity, severity, and frequency (see Vegetative Cumulative Impacts for more details). In these instances, negative effects could occur at a local or watershed level from increased fire, leading to increased erosion and sedimentation along streams, as well as removal of stabilizing vegetation along channels.

Removal of livestock on public land could lead to more pressure on private land. While riparian areas on BLM managed lands would improve, there would be potential for higher numbers of livestock or longer periods of time on private pastures, leading to adverse effects to water resources on private land.

While there would be potential for large improvements to public land under this alternative, there are more uncertainties about impacts due to fuel loading and pressure on private land at the cumulative impacts level in comparison to Alternative 4.

4. SOIL RESOURCES

This section analyzes impacts to soils that would result from implementing proposed management actions under the various alternatives. Action alternative impacts are based on the Planning Area's current soil conditions (described in Chapter 3) and are compared to soil conditions that would be expected to occur under the No Action Alternative.

Soil productivity is the ability of soil to grow plants. The success or failure of meeting soil objectives is measured by maintaining or improving soil productivity while accomplishing management actions. Coarse wood in forest and woodland sites is essential to long term carbon storage and soil productivity. Healthy stands of native bunch grass are good for maintaining and replenishing organic matter necessary for rangeland soil productivity. Soil function is the capacity of soil to 1) sustain life, diversity, and productivity; 2) regulate and partition water and solute flow; 3) filter, buffer, degrade, and detoxify potential pollutants; and 4) store and cycle nutrients. Soil function is reduced in compacted soils or where soils are eroding. Reduced soil function in compacted soils is related to reduced pore space, less biologic activity, increased water runoff, and loss of organic material. Topsoil and the organic matter that it contains is the fuel for biologic activity, improved soil structure for increasing water infiltration and holding capacity, and nutrient cycling. Erosion physically removes the soil, reducing productivity by removing the surface material, including the organics and nutrients necessary for growing plants. Biotic crusts help stabilize soils where vegetation cover is sparse. Hydric soils are highly productive soils within riparian areas and wetlands. Hydric soils, biotic crusts, highly erosive soils, and dry soils are highly vulnerable to disturbance from management activities.

Soils within the Planning Area are susceptible to impacts from management actions that involve ground disturbing activities. Soil disturbance, compaction, and loss of ground cover can lead to accelerated erosion and loss of soil productivity. A subset of soils considered sensitive to disturbance was identified.

The most common soil disturbing soil activities are from soil displacement such as the removal of topsoil through blading or spinning wheels, compaction from multiple passes from heavy track or wheel based ground equipment, soil sterilization from burning or hot fires, application of chemical herbicides or contaminants that would reduce perennial grass ground cover, and overuse by livestock or wildlife causing compaction and loss of native perennial grass ground cover.

The effects of cross-country travel and livestock grazing include reduction or disturbance of surface cover (i.e., soil-holding vegetation, litter, and rocks), displaced soil particles, increased soil compaction, creation of new flow paths and channels, and increased runoff. All of these combine to increase soil erosion and loss of soil productivity.

a. Indicators, Methods, and Assumptions***Soil Resources Indicators***

Indicators are used to identify the level of impacts by alternative. In general, any ground disturbing activity that could lead to loss of ground cover or vegetation cover, or any activity that causes compaction or erosion of soils or makes them more vulnerable to erosion, would be an indicator of adverse impacts to soils. Management Actions that would increase soil cover and reduce compaction or erosion would indicate a beneficial impact. Indicators include:

- Acres grazed and season of use
- Acres with fuel reduction treatments
- Acres open for cross-country travel
- Acres available for mineral exploration
- Acres available for ROWs
- Acres protected by ACECs
- Grazing in Wyoming big sagebrush
- Riparian stubble height requirements

Soil Resources Methods and Assumptions

The analysis of potential impacts to soils is based on the expertise of BLM resource specialist. The impact analysis is also based on GIS data, NRCS soil surveys, other agency maps and documentation, reviews of existing literature, and information provided by non-planning team experts in the BLM and other agencies.

For the analysis, general soil types, erosion potential, structure, and function were discussed and impacts were analyzed. The analysis was based on reference information, site investigations, and anticipated effects of management actions by alternative and professional interpretation and judgment.

This analysis uses both quantitative and qualitative measurements to compare impacts to soils and is based on the following assumptions:

- Increased soil cover lowers erosion rates. Increasing site potential vegetative cover lowers erosion rates and adds organics to soil, increasing soil productivity.
- Higher resource use has the most potential to disturb soil through activities such as roads, trails, timber sales and grazing. These activities can cause areas with soil compaction from machinery or animals trampling. Removal of vegetation by machinery, fire or grazing can lead to erosion if sufficient groundcover is not left in place. Conversely, more groundcover stabilizes soils.
- Both compaction and erosion can decrease soil productivity and contribute to elevated sediment levels in streams.

- Roads heavily impact soils by removing acres from productivity and contributing to soil erosion. Non-paved roads that receive high use tend to have higher rates of erosion (Luce and Black 2001).
- Fires that heat soils to high temperatures can volatilize organics and produce a hydrophobic layer that contributes to higher rates of runoff and more soil erosion.
- Wildfires tend to have more areas that burn with high intensity than prescribed fires.
- Soils on steep slopes or soils with low amount of vegetative cover are also prone to movement.
- Hydric soils and soils with biological crusts are sensitive to management activities.
- Areas with special management designations tend to be more protective of soils due to tighter controls on what activities are allowed in the area. This includes RMAs, WSRs, and ACECs.

Magnitude of Impacts to Soil Resources

Impacts are sometimes described using ranges of potential impacts or in specific qualitative terms, if appropriate. When impacts are positive, it is so stated. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible: The amount of soil loss or erosion, or changes in soil characteristics would be at or below the level of detection or at a very local scale.
- Minor: The amount of soil loss or erosion, or changes in soil characteristics would be small, as would the size of the area affected. If mitigation were needed to offset adverse effects, it would be relative simple to implement and would likely be successful.
- Moderate: The amount of soil loss or erosion, or changes in soil characteristics would be readily apparent and result in a change in the productivity of the soil over a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and would likely be successful.
- Major: The amount of soil loss or erosion, or changes in soil characteristics, would be readily apparent and long-term and would substantially change the productivity of the soils over a large area. Extensive mitigation measures to offset adverse effects would be needed, and their success could not be guaranteed.

Implementing Rangeland Standards and Guidelines (BLM 1997), SOPs, and BMPs for any soil disturbing activity reduces the intensity of the impact to soils. Fuels-reduction projects, which typically involve vegetative treatments and/or low-intensity burns, may result in short-term soil disturbance, but if successful, they would prevent or reduce long-term damage to soils from high-intensity wildfire. Earth-moving activities related to mineral development can have high intensity impacts to soils and may result in long-term degradation of soil resources. Heavy grazing can lead to compaction and loss of vegetation cover.

Spatial Scale

Local: 6th field watershed
Watershed: 5th field watershed
Widespread: Subbasin-4th field watershed or larger

Temporal Scale

Short-term: Anticipated effects occur within 0 to 5 years of project implementation.
Long-term: Anticipated effects occur for longer than 5 years.

b. Impacts to Soils

Impacts to Soils in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Wildlife
- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs

No Action AlternativeImpacts from Water Resources

The No Action Alternative and all alternatives comply with both the Clean Water Act and the Safe Drinking Water Act. These acts establish a direct connection between the water quality, watershed protection, and land management. The excessive movement of sediment to water degrades water quality. Therefore, in order to protect water quality, it is necessary to protect soils. An important and effective protection for soils is through the use of BMPs (established for timber harvest, road construction, fuels and fire, and other management activities). For the No Action Alternative, RMA buffers established under PACFISH add additional protective measures for soils along waterbodies with anadromous fish. These protections would reduce the impacts to hydric soils to minor, short- or long-term, and adverse in contrast to the moderate to major, long-term impacts that have resulted since implementation of these mandates.

Roads

This alternative does not have specific management actions relating to roads. Roads remove soil from productivity by compacting the surface and removing vegetation. Road surfaces limit infiltration and increase the rate of fine-grained sediment production (Wemple et al. 2000). Debris slides initiated on road cutslopes and fillslopes increase rates of mass wasting in vulnerable areas. In addition, roads may influence sediment production and transport by fluvial processes, where sediment or wood is trapped at stream-crossing culverts and diversion of surface runoff results in culvert failure or gulying of ditches, road surfaces, and hill slopes. Elevated erosion along roads would continue to have long-term, local, moderate to major, adverse impacts, and a minor to moderate, adverse impact across the Decision Area.

RHCAs and Restoration

The No Action Alternative would continue the use of RHCAs, under PACFISH and the BLM Bull Trout Strategy. The RHCAs are intended to protect riparian areas by restricting surface and stream bank disturbance to reduce erosion. This would be moderate and beneficial both in the short and long term, at both the local and watershed scale. However, these are only used in anadromous watersheds or where bull trout occur. Riparian areas in other watersheds do not receive this protection, which would result in a long-term, moderate, adverse impact to these areas.

Although management actions do not specifically require restoration along streams, approximately 40 miles of some type of restoration occurs every 10 years. There would be no emphasis on improving riparian vegetation. Where restoration occurs within riparian areas, hydric soils are protected, which results in a long-term, localized, moderate, beneficial impact. At the watershed scale, impacts are beneficial, but minor due to the small areas treated.

Impacts from Soil Resources

Implementing BMPs for ground disturbing activities including road, streamside management, timber harvesting, and stream crossing measures protects soil resources. These protective actions have reduced the magnitude of present impacts to soils from management actions.

Past management focused on soil protection within non-native annual grass communities by seeding high site potential areas with desirable vegetation and refining livestock management in native communities. The No Action Alternative focuses on improving soil stability on large continuous tracts of land where significant progress could be made. Therefore, small to midsize projects to improve soil resources would not be emphasized, resulting in local, moderate, adverse impacts. This management has focused on upland improvements with little attention to riparian areas. This has had and would continue to have a moderate beneficial impact on large continuous tracts in the uplands, but would have a long-term, moderate, negative effect in riparian areas due to overuse by livestock.

Under this alternative, biological crusts get no specific protection and are left somewhat vulnerable to disturbance from management actions. Biological crusts influence nutrient availability for vascular plants (Belnap et al. 2001) and are important for stabilizing soils and reducing erosion in areas with poor grass cover. There are 35,202 acres of native shrub communities that are not meeting rangeland health standards suitable for biological crusts. There would be no management direction to improve the condition of biological crusts in these areas to improve soil stability. In the short term, there would be a continuation of ongoing degradation of biological crusts from moderate to heavy grazing pressure. Long-term, local, moderate to major, adverse effects to the more sensitive crusts would occur as the chronic effects continued, potentially leading to higher rates of soil erosion in these areas.

Impacts from Vegetative Communities

Riparian

Grasslands (including riparian areas) are generally managed within grazing allotments but must maintain key species and meet rangeland health standards (1997). This gives added protection to soils by improving the soil cover.

Using the same utilization targets for riparian and uplands would continue to stress the condition of the riparian areas as livestock tend to congregate in riparian areas and overuse these areas. Livestock are presently known to have an adverse effect on 117 miles of streams (surveyed using PFC) and their associated riparian areas. In some instances, changes in season of livestock use, reducing stocking rate, and/or improving distribution would be insufficient for improving rangeland health to a desirable condition. Therefore, in the short term, continued overuse of some riparian areas would be expected to occur. These soils would continue to be compacted, decreasing infiltration and increasing runoff, thereby lowering the availability of moisture for the vegetation (Fleischner 1994). Trampling of banks and removal of bank stabilizing vegetation would continue leading to continued soil erosion for a moderate adverse effect from continued heavy use. Implementation of the Rangeland Standards and Guidelines (BLM 1997) has resulted in slowly changing management to improve riparian conditions. In the long term, changes to grazing systems would slowly occur and would have widespread, minor to moderate, beneficial effects by stabilizing riparian areas and protecting hydric soils.

Uplands

In general, implementation of Rangeland Standards and Guidelines (BLM 1997) has led to and continues to lead to slow improvement in upland soil conditions. This has a widespread, short- and long-term, moderate, beneficial effect on soil in the Decision Area.

However, there are some areas where vegetation management direction would be not specific enough to improve soil conditions in sagebrush habitats where biotic crusts are important for soil stability. Forage utilization targets are set for grazing systems, but, at this time, do not take biotic crusts, key plant growth stages, or wildlife habitat into account. This would continue to lead to a minor to moderate, adverse impacts where the utilization targets are inappropriate for the site. Where grazing on non-native grasses occurs during the summer, when temperatures are

hot, continued impacts to hydric soils within riparian areas would occur, as livestock preferentially use riparian areas for shade and water. This contributes to a watershed-wide, moderate, adverse impact from overuse of riparian areas. This would be particularly true for pastures within the Powder River subbasin where larger tracts of non-native grasses occur.

This alternative has no specific management actions (such as firebreaks) to protect intact Wyoming big sagebrush communities from the spread of nearby non-native annuals and no policy of full fire suppression for Wyoming big sagebrush. The Powder River subbasin is the area most vulnerable to conversion of Wyoming big sagebrush to non-native annual grasses as it contains substantial acreage of Wyoming big sagebrush and nearby tracts of non-native annual grasses. The more frequent fire regime associated with these annuals would spread to the Wyoming big sagebrush, degrading the habitat as the site converted to the non-native annuals. As a result, this would lead to the loss of soil organics and elevated erosion from the frequent fires and would have localized, long-term, moderate to major, adverse effect on soils where fires occurred.

While seeding of late successional native grasses does occur in non-native grass communities, there would be no direction to promote restoration on non-native grass communities to native communities. Native grasses cannot become reestablished without management help where cheatgrass or medusahead rye has formed continuous stands. Soils with cheatgrass cover show a faster cycling of organic matter compared to soils in sagebrush-steppe communities. This depletes the organics over time and creates ecologically impoverished sites that are very difficult to restore to functionally diverse perennial plant communities (Norton et al. 2003).

This alternative has no specific management actions dealing with the control of juniper, although approximately 9,000 acres are treated every ten years. Junipers are spreading due to fire suppression over the last century and have increased their range by over 1000 percent, primarily invading Wyoming and Mountain big sagebrush communities. Juniper can change the soil function by using most of the available moisture and nutrients, such as nitrogen (Bedell et al. 1993). Nitrogen is one of the most limited nutrients in semi-arid systems. With limited moisture or nitrogen it is difficult for other vegetation to become established. No treatments specifically designed for reduction in juniper are specified under the management plans. Areas with increased juniper have less understory vegetation, reduced infiltration, and increased erosion (Pierson et al. 2008). Impacts from treatment could result in local, minor to moderate, short-term, adverse effects to soils due to increased ground disturbance and subsequent elevated sediment. In the long-term, the effects of such treatments would result in watershed-scale, minor, beneficial impacts due to improved infiltration from higher groundcover and the resulting reduced erosion (Peterson and Stringham 2008).

Impacts from Invasive Species

There are a wide variety of invasive species found within the Decision Area. They tend to occur and spread along roadways, ROWs, where fires have occurred, along livestock paths, and other disturbed areas. Once established, weeds can influence the soil nutrient environment to favor

their re-establishment. Cheatgrass, an annual grass, can alter the fire regime in favor of more frequent fires. Weed infested soil has been shown to be more susceptible to erosion than soil occupied by native grass species (Lacey et al. 1989).

Manual and mechanical methods can have short-term, minor, adverse impacts from erosion for 1 to 2 years until new vegetation grows and protects the site.

Treating invasive plants can have short-term impacts to soils where certain herbicidal treatments affect soil biology, though effects would be transitory for most herbicides, depending on the herbicide type and frequency applied. Short-term, minor to moderate, adverse effects may occur where diverse native grasslands are treated with nonselective herbicides and broadcast methods. These impacts are related to the short-term loss of non-target broadleaf forbs that support diverse soil communities. Soil erosion from loss of vegetative cover is only a concern for monocultural stands of weeds. Minor elevated erosion can occur for 1 to 2 years after treatment until the site is re-vegetated. Locally, there would be long-term, minor to moderate improvements to soil functioning as a result of native vegetation becoming reestablished in treated areas.

Early detection rapid response allows for the treatment of new infestations while they are small and easier to control. There would be less emphasis on EDRR under the No Action Alternative. This alternative has less emphasis on stabilizing and restoring treated sites, resulting in a widespread, long-term, minor, negative effect.

Impacts from Wildlife

Any wildlife management that increases soil cover such as management to protect sage-grouse would improve the soils in these localized areas. There are no specific management directions for closing roads. Beneficial effects to soils from wildlife management would be expected to be localized and, therefore, negligible overall. There are no management actions to protect Wyoming big sagebrush communities or to rehabilitate wildlife habitat. Therefore, elevated erosion found in degraded habitat would continue.

Management actions are very general under the No Action Alternative and any positive effects would be expected to be localized, thereby having negligible overall effects on soil productivity.

Impacts from Fires and Fuels Management

Approximately 9,000 acres are burned through prescribed fires or wildfire use every ten years. Impacts from other fuel treatments such as thinning, mastication, and lop and scattered, which would occur on up to 9,000 acres per decade under the No Action Alternative, would be reduced using BMPs to minimize soil disturbance. Fire management activities affect the soil resource in three ways: 1) machines used for chipping or piling slash compact and sometimes displace soil; 2) removing woody debris reduces long-term productivity of the site; and 3) fire can directly alter the chemical and physical soil properties (Elliot et al. 2010).

If the prescribed fire burns hot enough to remove the perennial grass community, it would allow non native cheatgrass, medusahead, and other weeds to invade the site. As a result, the impacts would then be long-term and adverse to soils. BMPs stress burning when soil moisture levels are high to avoid this effect. Prescribed burning may have a localized, short-term, adverse impact on soils by removing the vegetation and litter that protects soils. Immediate effects would result from the loss of protective organic matter (i.e. live and dead vegetation), disturbance of biological crusts, and changes in the physical and chemical characteristics of the soil surface. These effects vary according to the fire intensity and duration. Other fuels treatments such as mechanical treatments may compact soils from the use of heavy equipment. Erosion could occur from fire-line construction, especially on steeper slopes.

Treatments such as lop and scatter and mastication can add cover to soils, which would be a positive effect. These fuel treatments would be close to structures and along major travel routes. Fires that would historically occur in lower elevation sagebrush-perennial grass communities at a return interval of 50 to 85 years have shown a downward trend to the 5- to 25-year range in some locations. While fuel reduction treatments could result in short-term disturbance to soils, if successful, they would prevent or reduce larger impacts from high-intensity wildfires. BMPS would be used to lower the negative impacts from treatments.

Hot fires negatively impact soil productivity (Elliot 2010, DeBano 1991). By using prescribed fires when soil moisture is high, fuel accumulations can be reduced to historic conditions with minor short-term impacts to soils. Where large machine piles are burned, high intensity or duration high fire intensity or duration may cause some soils to become hydrophobic (water repellent), which impedes infiltration and increases surface runoff. These are generally in small, discrete areas. Volatilization of nutrients may cause additional long-term loss of site productivity. Germination, vigor, and spread of some noxious weed species and introduced annuals would be more pronounced following fire due to the amount of continuous bare ground. The effect of fire on soils may be greater on sites with undesirable plant species (annual grasses) than on sites where healthy native vegetation is present.

The Decision Area has seen an increase of annual grasses (cheatgrass and medusahead rye), as well as an accelerated fire return interval and frequency in annual grass infested areas. Suppression efforts to protect Wyoming sagebrush habitats have increased, but are not specifically required under the No Action Alternative.

Many treatments would be used to maintain areas that have already been treated in the past. As the purpose of treatment would be to protect specific areas from wildfire or to return an area to a more natural fire regime, the long-term effects would be beneficial and minor to moderate. While fuels treatments may have minor, short-term, negative effects, they would be expected to have longer-term beneficial effects by moving the landscape towards a more natural fire regime and adding protection against high intensity wildfires (Finney et al. 2005).

Impacts from Forestry and Woodland Products

Harvest on 25,353 acres would focus on areas with the highest commercial volume. Clear cutting in small blocks of less than 40 acres was a common practice in the past but rarely occurs at this time. Under this alternative there would be more potential erosion due to soil disturbance and removal of vegetation during harvest, and more potential for compaction in harvested areas due to skid trails and temporary roads. These effects would be moderate and adverse for the stands being harvested. BMPs such as water barring main skid trails and logging when soils are dry, are in place to minimize impacts to soils in timber sales. Detrimental soil compaction would be required to be below 12 percent, excluding permanent roads, in order to protect soil productivity. While elevated erosion is short-term and dependent on the amount of groundcover left after harvest, as well as the intensity of rainfall the first few years after harvest, effects such as compaction can be long-term. As less than 10 percent of the Decision Area is woodland, the overall impact from harvesting would be localized, minor, and adverse.

Impacts from Livestock Grazing

There are 418,601 acres with authorized grazing under this alternative (97 percent of the land base) with 55,437 AUMs. Grazing would continue at present levels unless monitoring for rangeland health standards showed a resource need for lower numbers.

Implementation of Rangeland Standards and Guidelines (BLM 1997) are the same for all alternatives. These standards, particularly standards 1 and 2, focus on soil infiltration and permeability rates, ecological function, protecting soil hydrologic processes, and nutrient cycling. Implementation of these standards would lead to improvements in soil function overtime. For hydric soils, these changes would be very slow and, in the short term, moderate to major, adverse impacts would occur. In the long term, changes would be implemented that would lead to minor to moderate, widespread, beneficial impacts.

The maximum utilization standards set under the current Baker RMP (BLM 1989) have been found to be too high, leading to a reduction in the vigor and health of key plant species (see Vegetation section). This high utilization also leads to loss of organic matter and its associated nutrients, and can lead to increased erosion. This would continue to have a localized, long-term, moderate to major, adverse effects on soils where plant cover would be reduced or converted from native stands to nonnative annual grasses. These non-native annual grasses have a more frequent fire regime, a higher loss of nutrients, and higher erosion rates (Norton et al. 2003). Under the No Action Alternative, these utilization standards would be adjusted over time, resulting in a long-term, moderate, widespread, beneficial impact.

Impacts from Minerals

There are few restrictions on mining exploration and development, with all areas open to mining except WSR and NHOTIC. Mining exploration and development can dramatically reduce soil productivity and soil function, depending on the intensity and amount of activity. Of all the

types of mineral extraction, surface mining causes the greatest loss of soil function and productivity. This type of mining generally involves removing the productive surface soil in order to get to ore-bearing substrata below. The Powder River and Burnt River watersheds have the most legacy problems from past mining, with 20 miles of riparian areas known to be impacted by mines. Mines are restricted from surface occupancy in ACECs. Impacts to soils from mines are long-term. While localized, moderate to major, adverse effects can occur due to the stripping of soils, most mines within the Decision Area are small and occupy only a small number of acres. As a result, the overall effects would be minor to moderate.

Impacts from Recreation

There are impacts from both motorized and non-motorized recreation, with the highest impacts being from off-road motorized use. The use of OHVs often entails spinning wheels, high speed turns, hard acceleration, hill climbing, and cross-country travel on dirt roads. When this use occurs during very wet or very dry unimproved trails or native soils, it can cause accelerated erosion, soil displacement, and compaction. With increased motorized recreational activity, acres of surface disturbing activities, erosion and compaction would increase, while soil productivity and biological soil activity would decline. Soil surface disturbance from OHV use can disrupt growth of macrobiotic crusts which are important for erosion stability, nutrient processing, and soil function. Alterations in soil characteristics can decrease soil productivity.

Presently most lands are open for OHV use, leading to more user created trails and two track roads. These impacts are generally long-term as roads are hard to effectively close within the Decision Area. Virtual Flat OHV Play Area is approximately 5000 acres with 61 miles of trail. Impacts from OHV use would be long-term and have local, moderate to major effects to soils in popular areas, due to the many trails and off-road use of the area.

Under the No Action Alternative, NHOTIC and WSAs would remain closed to OHV use, which protects soils in these areas from off-road travel for localized moderate beneficial impacts. Hells Canyon is a popular recreation area with developed camping areas along the river, which is the focus of recreation in this area. Locally, there would be minor to moderate, adverse impacts in more heavily used areas, but watershed-scale impacts would be negligible.

Dispersed recreational activities without off-road motorized use, such as hiking and hunting, generally have a low impact on soils, but could have localized, minor impacts on more heavily used trails.

Impacts from Travel and Transportation

Roads analysis of the total BLM transportation system would occur after the RMP process is finished. The different alternatives each have a different emphasis for roads. The No-Action Alternative would tend to have more open roads than most of the other alternatives.

The transportation system has two basic effects on the soil resource. First, it takes land out of vegetation production. Once a road has been constructed, the site has lost much of its soil productivity (potential to grow vegetation). The cut-slopes and road tread lose potential to grow vegetation due to the loss of topsoil and compaction respectively, while fill slopes retain some potential for reestablishing vegetation cover. The second effect is the impact of the road on erosion over time. Roads transport water and entrained sediment from the surface of unpaved road, ditch lines, and the shoulders of all roads.

Natural surfaced roads composed of native soil material are responsible for most of the sediment that leaves the road system. Under all alternatives, the majority of roads in the Decision Area are native surfaced local roads. Higher road densities result in more adverse impacts on soils. Roads that receive more traffic are also at greater risk for soil erosion (Luce and Black 2001). BMPs would be implemented under all alternatives to reduce the negative impacts of road construction and maintenance; however, this would not improve existing problems.

At this time 287,611 acres are open to cross country travel with motorized vehicles. There are 138,042 acres with limited access (vehicles are required to stay on roads and trails) and 3,594 acres closed to motorized use. This means approximately 67 percent of the Decision Area would be entirely open to motorized use (including cross-country motorized use). When this use occurs for very wet or very dry unimproved trails or on native soils, it can remove vegetation and cause accelerated erosion, soil displacement, and compaction. With increased motorized recreational activity and an increase in acreage of surface disturbing activities, the number of trails and two track roads would increase encouraging further use. Erosion and compaction would increase while soil productivity and biological soil activity would decline. Localized, long-term, moderate adverse effects would occur at higher use areas. Long-term, minor to moderate, widespread, adverse effects would be expected from the amount of area open to motorized use as OHV use continues to increase.

Impacts from Lands and Realty

Exclusion areas for ROWs total 25,346 acres. Rights-of-way lead to increased compaction, erosion, a wider area of disturbance, and generally more road miles. There is increased interest in wind farms on BLM land, which would require increased access. This would keep most of the Decision Area open for expanding ROWs, which would have a long-term, widespread, minor to moderate, adverse effect to soils from disturbance depending on the expansion of ROWs and other land disturbances over time.

Impacts from ACECs

There are 10 ACECs for a total of 48,153 acres. Management in these areas can restrict use-related impacts by placing restrictions on off-road use, surface mine occupancy, and, in some areas, restrictions on livestock grazing. There would be long-term, minor to moderate, beneficial impacts from the added protection these areas receive as ACECs.

*Impacts Common to all Action Alternatives*Impacts from Fires and Fuels Management

Impacts from prescribed burning, use of wildland fire and other fuel treatments would be similar to those described under the No Action Alternative, although the magnitude of impacts would vary under the action alternatives depending on other resource needs (e.g., juniper treatments or timber sales).

*Alternative 1*Impacts from Water Resources*Roads*

Under this alternative, road analysis would prioritize removing the road/stream connection in watersheds with streams on the 303(d) list for elevated sediment or the 32 miles of stream where roads have been identified as affecting the PFC rating. Locally, this would have a minor to moderate, beneficial effect on soils impacted by these roads, particularly where the roads are removed. Overall, this would have long-term, localized, moderate to major, beneficial effects on water resources. Furthermore, given the low number of roads along streams under BLM control, this would have minor to moderate, beneficial impacts to hydric soils at the subbasin scale. Protective direction for all of the action alternatives is listed in Appendices 2.1 (BMPs) and 2.2 (ARMS).

RMA and Restoration

This alternative has the same protection for RMAs (equivalent to RHCAs) as the No Action Alternative. Restoration on 50 miles of stream every ten years includes an emphasis on increasing the woody vegetation, which would help stabilize soils in the riparian area and lower erosion rates in these sensitive areas. This alternative would have minor to moderate, long-term, beneficial impacts to hydric soils compared to the No Action Alternative.

Impacts from Soil Resources

Where there are elevated rates of erosion, seeding could occur with either desirable non-native or native vegetation, resulting in an additional minor to moderate, localized, beneficial impact. This alternative requires that detrimental soil disturbance be kept to less than 12 percent. This would have long-term, widespread, beneficial impacts to soils.

This alternative has additional protection for sensitive areas such as highly erosive soils, hydric soils, and microbial crusts. For native plant communities such as Wyoming sagebrush that have low to moderate groundcover, only light to moderate grazing levels would occur, giving additional minor protection to microbial crusts in these areas. These crusts are important for both soil productivity due to nitrogen fixation and for control of erosion from both wind and water. However, moderate grazing is still more impactful for biological crusts than light grazing.

Where microbial crusts occur this alternative would have a minor, beneficial impact due to additional protections for the crusts. Overall, this alternative has a long-term, minor to moderate, beneficial effect compared to the No Action Alternative.

Impacts from Vegetative Communities

Riparian

Under Alternative 1, stubble height targets of 3 to 4 inches on streams that have stable banks and flow for over one quarter of a mile across public lands would improve riparian conditions where this height is not currently met. The stubble height requirement of 6-8 inches for more sensitive streams would lead to a short-term, minor, but widespread improvement in riparian conditions. Stubble height would be set at 6 to 8 inches for low-gradient stream channels with silt or sand substrate, which are thought to be sensitive to livestock (e.g., Rosgen channel types B5, B6, C5, C6, F5, and F6) and 3 to 4 inches for all other streams. Stubble heights set in biological opinions would be retained regardless of sensitivity to livestock grazing. This would improve 113 miles of the 117 miles of stream channels presently not meeting rangeland health standards (not at PFC or upward trend) where livestock was listed as a factor (20 percent of channels surveyed did not list a management cause). For the four miles of stream currently meeting rangeland health standards, changes in seasons of use and changes in numbers could still be used to improve riparian areas. Overall beneficial impacts to riparian areas and hydric soils would range from moderate to major, particularly in the Powder River and Burnt River subbasins where many riparian areas are in poor condition due to grazing pressure. Long-term impacts would be widespread, beneficial, and moderate.

The 30 percent browse requirement would allow for the growth of woody vegetation, adding to channel stability and reducing erosion of the channel. This would have a minor to moderate, beneficial, impact on soil function and productivity for increased plant cover and decreased erosion.

Uplands

Over the life of the plan, seeding of 1,500 to 2,000 acres of annual grasslands that occur on more productive soils (high restoration potential sites) with desirable early or mid-successional perennial grasses would help to lower the intensity and frequency of wildfires in these areas, lowering erosion levels and protecting soil productivity. These sites are areas with deeper soils, lower slopes, and are less rocky than the sites considered less productive. They also include areas within Big Mountain sagebrush that are on less dry soils. Late succession species would be seeded later to move towards improved landscape health. On these sites there could be short-term, adverse impacts to soils from removal of cover with prescribed fire, use of herbicides, use of heavy equipment for drill seeding, and other active management actions. In the long term, there would be moderate improvement in soil function and landscape health due to the return of native vegetation to these treated acres. However, effects would be localized due to the small number of acres treated.

Lowering forage utilization targets on 43,795 acres of native sagebrush habitat would improve the function of the soils and protect them from erosion. This would have a major, long-term, beneficial effect over the No Action Alternative, particularly in the Powder River and Burnt River subbasins.

This alternative emphasizes landscape health and focuses on improving Wyoming sagebrush habitat. This would lead to moderate, long-term improvements in the functioning of the Wyoming sagebrush by protecting larger tracts of land and improving ecosystem health, including soils. This alternative protects intact Wyoming big sagebrush with firebreaks between these areas and annual grass communities to slow the expansion of annual grasses. There could be some short-term, adverse impacts from ground disturbance depending on how the fuel breaks were created, but long-term, beneficial protection for the ecosystem including soils would occur. Restoration work can have short-term, adverse impacts from ground disturbance, but would have long-term, beneficial impacts due to the protection of ecosystems and from slowing the increase of conversion of shrublands into annual grasslands.

Forage utilization set on site specific criteria would have a minor to moderate, beneficial impact compared to the more general No Action Alternative forage requirements.

Timing of grazing for pastures with annual grasses moved to spring grazing would alleviate some pressure on riparian areas. There would be localized areas of compaction and soil disturbance from grazing during the spring when soils tend to be wet.

In areas where juniper has expanded within the last 150 years due to fire suppression, between 500-2,000 acres of juniper would be treated each year to remove the majority of the juniper, keeping only the older juniper. Removing juniper can lead to minor, short-term increases in erosion due to ground disturbance until new vegetation adds to groundcover. New vegetation would be expected to increase groundcover within approximately 1 to 2 years. This would improve soil infiltration and erosion (Peterson and Stringham 2008) and have long-term, minor to moderate, beneficial impacts at the watershed scale.

Impacts from Invasive Plants

Impacts are similar to the No Action Alternative, but with more of an emphasis on EDRR and site restoration. This would have a local, minor to moderate, beneficial effect compared to the No Action Alternative due to increased treatment and restoration.

Impacts from Wildlife

Allowing extra forage for wildlife adds minor to moderate additional protection for soils. Road closures for wildlife also protect soil because restricted road use reduces erosion. As road closures are generally localized, any beneficial effect would be negligible to minor.

On the other hand, a large increase in the number of elk could have minor, localized, adverse effects where vegetation is over-browsed. These impacts would be similar under all alternatives.

Grazing when soils are wet can lead to compaction or displacement of soils. Additional restrictions on grazing in areas with sage-grouse would reduce compaction and leave more cover, reducing impacts to soils from early season grazing when soils are wet.

Overall, wildlife management actions would have a minor, beneficial impact on soils.

Impacts from Forestry and Woodland Products

Timber production would impact approximately 500 acres per year under this alternative, generally due to thinning from below to promote tree vigor. As with the No Action Alternative, there would be the use of skid roads, landings, and temporary roads, resulting in the potential for lowered soil infiltration due to increased compaction. The loss of cover combined with compaction can lead to localized increased erosion where treatments occur. Impacts are minimized by keeping detrimental soil disturbance to 12 percent of a treated area (not including permanent roads). As most of the roads and skid trails are in place and would continue to be used, only minor, localized, impacts would occur. Timber oriented management actions directed towards promoting tree vigor would have a long-term, local, minor, beneficial impact when compared to the No Action Alternative.

Impacts from Livestock Grazing

There would be 388,140 acres available for grazing with 41,500 AUMs. This would be a decrease of 8 percent of the acreage and about 25 percent of the AUMs compared to the No Action Alternative. These numbers could change over time in conjunction with monitoring of range conditions with rangeland health standards. Under all alternatives, grazing would be guided by Rangeland Standards and Guidelines (BLM 1997). Individual grazing allotments would be evaluated using the five standards for rangeland health criteria from this guidance. If grazing is a cause of not meeting these standards, then livestock management, such as animal numbers, season of use, and grazing intensity would be adjusted. Under this alternative, if two consecutive evaluations do not show an improvement in conditions, a five year rest period would be implemented for the pasture to more quickly improve rangeland conditions where rangeland health standards are not being met. There would be minor, short-term improvements under these management actions, which would, in turn, lead to a long-term, minor to moderate, beneficial impact to hydric soils compared to the No Action Alternative.

Light to moderate grazing on areas of Wyoming big sagebrush would be beneficial to these soils compared to the No Action Alternative by protecting soils from trampling and overuse, as well as protecting the crusts found on these soils. Microbial crusts are given more direct protection than under the No Action Alternative. Where microbial crusts occur, salt and water tanks would be kept away from the crusts, resulting in a local, minor, beneficial impact.

Impacts from Minerals

Impacts are the same as for the No Action Alternative, except slightly less soil disturbance would occur around mine sites in Wilderness areas because surface occupancy would not be allowed in Wilderness areas. This would have a long-term, minor, beneficial impact locally, but negligible impact overall.

Impacts from Recreation

Recreational use would be expected to expand and facilities would expand as needed. This would adversely impact soils where additional use occurs. Restrictions on cross-country travel would have a moderate to major, beneficial impact on soils where restrictions occur.

Restriction on numbers of rafters along high use rivers would help protect soils along rivers from trampling and removal of wood for fires. These impacts are localized and negligible overall.

Virtual Flat OHV Play Area is approximately 5,000 acres with 61 miles of trail. Soils are degraded within this area due to the many trails and off road use of the area. Under this alternative, only this area has open designation for OHV use.

Impacts from Travel and Transportation

Roads that have high impacts on landscape health and water would be relocated, redesigned or decommissioned. This would reduce erosion from these roads, leading to a reduction in the present adverse effects from roads. As this would probably happen with only a few roads, local effects would be moderate and beneficial, but the overall effects would be minor at the watershed scale.

Under Alternative 1, OHV use would be restricted to roads and the Virtue Flat OHV Play Area until completion of the TMP. Off road use can be harmful to soils over large areas because trails driven only once or twice can encourage other people to drive these areas and establish new, unneeded roads. Cross-country motorized use would be confined to 1 percent of the Decision Area versus most of the land being open the cross-country use under the No Action Alternative. Seventy-nine percent of the area would have motorized use restricted to roads and trails. These restrictions would have a long-term, moderate, beneficial effect to the Decision Area.

Lands and Realty

Under Alternative 1 an emphasis would be placed on retaining or acquiring lands to consolidate land with higher public resource values. This would improve management in these areas as larger blocks of land receive more consistent management.

This alternative removes 71052 acres from use as ROWs. This would keep travel and transportation/utility corridors confined in order to minimize soil disturbance, resulting in a long-term, moderate benefit compared to the No Action Alternative.

Energy corridors would avoid ACECs, cultural sites, special status species, and the NHOTIC viewshed. For wind energy, an exclusion buffer would occur around the Virtual Flat ACEC, but other areas with leks would receive avoidance buffers of 3 miles. These restrictions would help control development to protect more acres from the addition of roads and ground disturbance that accompanies development. This would have a widespread, long-term, minor to moderate, beneficial effect to soils by confining disturbances.

Impacts from ACEC Management

An additional 35,603, acres would be added into ACECs or NRAs over what is found under the No Action Alternative for a total of 83,756 acres managed within ACECs. This would be more than double the acreage of the No Action Alternative and includes 19.6 percent of the Decision Area. These acres receive an added layer of protection due to specific management direction within these areas that increases protection of soils. This would result in a long-term, minor to moderate, beneficial effect at the watershed scale. The Oregon side of the Grande Ronde ACEC would no longer be part of the ACEC as it receives protection as a WSR under the Wallowa and Grande Ronde Rivers Final Management Plan/EA (BLM et al., 1993).

Alternative 2

This alternative has the most emphasis on commodity production and the least on restoration. All laws would be followed to give moderate protection to soil resources. Rangeland Standards and Guidelines (1997) would be followed on grazing lands for the protection of soil in these areas.

Impacts Same as Alternative 1

- Impacts from Woodland Management
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Minerals

Impacts from Water Resources

Roads

Road improvement would focus on improving drainage for roads used for commodities. This would have minor, localized, beneficial impacts in these areas. This alternative would likely keep more roads for commodity use and therefore would have a minor adverse impact on soil productivity compared to Alternative 1. As roads are a large conveyor of sediment, there would be higher potential for sediment movement under this alternative than Alternative 1. Overall there would be fewer beneficial effects compared to Alternative 1.

RMA's and Restoration

This alternative has fewer acres in RMA's for intermittent streams and wetlands than the No Action Alternative and, therefore, has less protection for hydric soils than the No Action Alternative for a minor adverse effect. Approximately 20 miles of streams would be restored every ten years under this alternative compared to 50 miles for Alternative 1. Some of this restoration would include vegetation projects within the riparian area.

Overall, this alternative has fewer required protections for riparian areas and hydric soils.

Impacts from Soil Resources

Impacts would be similar to those discussed under Alternative 1, with the exception that biological crusts would have impacts similar to the No Action Alternative.

Impacts from Vegetative Communities Management*Riparian*

Riparian stubble height targets would only apply to streams that flow at least one mile in BLM administered lands. This means 86 miles (74 percent) of streams not meeting rangeland health standards due to livestock would have stubble height targets applied, and that 31 miles would not have these targets. This leaves less protection to the riparian areas surrounding the more than 31 miles of stream that have less than one mile on BLM administered lands. The lower stubble height requirement under this alternative would be suitable for some streams but too low for riparian areas with finer textured soils. This would have a minor, beneficial impact to riparian soils compared to the No Action Alternative, but less positive impact than Alternative 1. Furthermore, this would have the most impact in the Powder River and Burnt River subbasins where riparian conditions are most impacted by grazing.

Impacts from browse requirements would be same as described under Alternative 1.

Uplands

This alternative has the least focus of the action alternatives on improving Wyoming big sagebrush habitat or on improving native habitats in general. Forage utilization for livestock would be set at 50 percent. No focus would be put on key species or biotic crusts. No additional protection would occur for grazing in Wyoming sagebrush. With no additional protection, continued widespread moderate negative effects to microbial crusts would be expected, leading to a more simplified biological assemblage. Continued minor to moderate, negative impacts would be expected in areas presently showing negative effects from grazing. Improvements with changes to grazing systems to meet rangeland health standards would lead to overall improvements in cover and soil stability, resulting in the same effects discussed under the No Action Alternative.

Firebreaks between annual grass communities and Wyoming big sagebrush have the same effects as under Alternative 1. Forage utilization would follow the same general requirements, and result in the same effects, as discussed under the No Action Alternative.

Restoration would not be a priority under this alternative, although it would occur in some instances. Where up to 1,500 acres non-native annuals were reseeded the purpose would be increasing forage with less emphasis on native vegetation. This would have localized, short-term, minor, adverse effects, due to erosion where there would be soil disturbance associated with the removal of non-native annuals and the reseeded of other vegetation. There would still be localized, moderate, long-term benefits due to the conversion of fire prone annual stands to perennial grasses.

Juniper treatments would occur where they could increase other commodity values. Impacts would be the same discussed under Alternative 1, but the magnitude and intensity would depend on an unknown number of acres treated.

Impacts from Wildlife Management

This alternative is similar to Alternative 1 with the exceptions that fewer roads would be removed for wildlife, resulting in localized, negligible to minor, adverse effects. Furthermore, fewer protections would occur for Wyoming big sagebrush, resulting in localized, minor, beneficial effects compared to Alternative 1.

Impacts from Livestock Grazing

There are 396,210 acres available for grazing, an increase of about 8,000 acres (or 2 percent) over Alternative 1. There would be 47,350 AUMs authorized, approximately a 14 percent increase over Alternative 1. These numbers or the timing of grazing could change over time in conjunction with monitoring of range condition with rangeland health standards. There would be no requirement for mandatory rest where standards are not met for two consecutive evaluations. Larger problems would be addressed by slowly changing grazing numbers or the timing of grazing under Rangeland Standards and Guidelines (BLM 1997). Given the additional grazing and higher utilization compared to Alternative 1, a slow upward to flat trend in soil conditions would be expected. Overall, this alternative would have long-term, widespread, beneficial impacts compared to the No Action Alternative.

Impacts from Recreation

Under Alternative 2, forms of recreation that provide income to the community would be encouraged, which would include OHV use. Increased OHV use would remove groundcover, compact soils, and lead to increased erosion. Alternative 2 also promotes the expansion of facilities, which would add greater disturbance to soils. Overall, impacts would be adverse, widespread, long term, and minor.

Impacts from Travel and Transportation

Roads would potentially have the largest impact under this alternative for the action alternatives. As commodity use is important for this alternative, it has the least emphasis on closing roads. Roads would be upgraded to improve commodity extraction and removed where not needed. Additional roads would take land out of production, increase compaction, and lead to increased erosion, and potentially to increased sediment delivery to streams.

Impacts would be similar to those discussed under Alternative 1. However, adverse impacts from roads open to OHV use would be slightly more intense and extensive as 5 percent of the Decision Area would be open to cross-country travel under Alternative 2, with Denny Flat and Sunday Hill being open in addition to the Virtual Flat OHV Play Area. In addition, Alternative 2 proposes slightly less than half as many acres closed to motorized use compared to Alternative 1, which would reduce the intensity and extent of beneficial impacts (9 percent of the Decision Area). Limited access would occur on 84 percent of the Decision Area compared to 79 percent under Alternative 1, resulting in a minor reduction in beneficial impacts compared to Alternative 1.

Impacts from Lands and Realty

This alternative has the least restrictions on new utility corridors of the action alternatives. There would likely be greater ground disturbance and loss of soil productivity under this alternative compared to Alternative 1, due to the addition of new utility corridors on previously un-impacted soils.

Alternative 2 would have the smallest number of acres designated as exclusion acres (25,236) for all land use authorizations of the action alternatives. The I-84 energy corridor would be over a mile wide under Alternative 2, which is the widest proposed under all the alternatives. This has potential to adversely affect more acres of soils due to the wider area of land disturbance. Avoidance areas of 32,403 acres would receive some protection. Overall, the beneficial impacts would be reduced in extent compared to Alternative 1.

Impacts from ACECs

There would be a decrease of 13,734 acres (a 28.5 percent reduction in acreage) from ACEC management under this alternative compared to the No Action Alternative. Management would be similar to the no action alternative. Grazing would be authorized for certain leases within ACECs as long as resource values were protected. This is less protective than Alternative 1, which uses grazing on ACECS only as a tool for improving vegetation. This alternative would have a long-term, minor to moderate, adverse impact to soils compared to the No Action Alternative.

*Alternative 3*Impacts Same as under the No Action Alternative

- Impacts from Invasive Plants and Noxious Weeds

Impacts Same as under Alternative 1

- Impacts from Minerals
- Impacts from Recreation
- Impacts from Forest and Woodland Products

Impacts from Water Resources*Roads*

Roads would focus more on improvements for recreation than removal. This narrow focus would have less beneficial effect to soils than under Alternative 1, which would reduce the intensity of beneficial impacts to long-term and minor at the watershed scale.

RMAs and Restoration

RMA buffers would give the same level of protection to hydric soils as discussed under Alternative 2.

Up to 40 miles of stream restoration would occur under this alternative with an emphasis on areas used for recreational fishing. These areas would receive more treatments for bank stabilization and re-vegetation to mitigate erosion in heavily used areas. There would likely be minor, adverse effects to riparian areas receiving heavy use. Localized, moderate, beneficial impacts would occur for riparian areas along important recreational streams. Benefits to other riparian areas from restoration would be negligible.

Impacts from Soil Resources

Impacts are similar to Alternative 1, with less protection for biological crusts in designated OHV areas.

Impacts from Vegetative Communities*Riparian and Wetland Management*

This alternative has stubble height requirement the same as Alternative 2 for stable streams, but is similar to Alternative 1 in other instances. The stubble height requirement would not be applied unless a stream flowed for at least a half of a mile over BLM administered land. This would give less protection to hydric soils along 10.6 miles of stream. The benefits of implementing this would be between those of Alternatives 1 and 2.

Variable stubble height requirements for grazing in riparian areas would have similar effects as those discussed under Alternative 2, with slightly more protection in some areas. The browse requirement would be the same as under Alternative 1. There would be less emphasis on Wyoming sagebrush habitat under this alternative.

Upland

Firebreaks between annual grass communities and Wyoming big sagebrush have the same effects as under Alternative 1. Forage utilization would have the same effects as discussed under Alternative 1. Impacts of restoration would be the same as discussed under Alternative 2, although fewer acres (1,000) of non-native annual grasses would be seeded. Juniper treatments would be the same as discussed under Alternative 1.

Impacts from Wildlife

Similar impacts as Alternative 1, with slightly less protection for sage-grouse habitat for negligible to minor impact to soils.

Impacts from Fire and Fuels Management

Impacts would be the same as those discussed under the No Action Alternative, with the magnitude depending on number of acres treated.

Impacts from Livestock Grazing

There are 380,000 acres available for grazing under this alternative with 35,500 AUMs. This would be approximately a 16 percent decrease in AUMs compared to Alternative 1. Overall impacts would be similar to those described under Alternative 1, but with a decreased magnitude due to the drop in number of livestock and acres grazed.

Impacts from Recreation

This alternative promotes both motorized and non-motorized recreation and, therefore, there would be more detrimental effects to soils, due to more usage. This includes both dispersed and developed recreation sites. This increases potential for soil disturbance over a larger area than that of the other action alternatives, but would be less impactful than the open land policy prevalent under the No Action Alternative.

Impacts from Travel and Transportation

The effects would be similar to those of Alternative 1, with more roads improved in recreation areas to allow increased recreation based traffic. Potentially, more roads could be kept open for recreational use than under Alternative 1.

Adverse impacts from public lands designated as open to OHV use would be the same as those discussed under Alternative 2. Beneficial impacts from areas closed to motorized use would be closer to those identified under Alternative 1, albeit slightly less extensive, as 4,633 fewer acres (9 percent) would be designated as closed compared to 19 percent under Alternative 1.

Impacts from Lands and Realty

This alternative has similar effects as Alternative 1, except for the emphasis on increasing access to areas used for recreation. This leads to more road use and more localized areas of erosion from use of roads, particularly during wet times of the year. Adding the NHOTIC viewshed and the Virtue Flats OHV Play Area to the exclusion area would protect the soils in the native sagebrush communities found in these areas.

Impacts from ACECs

The acreage within ACECs is similar to the No Action Alternative. Management is similar to Alternative 1, except the Oregon Grande Ronde River acreage would be included within the Grande Ronde River ACEC. Management would remain consistent with Wallowa and Grande Ronde Rivers Final Management Plan/EA (BLM et al., 1993).

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Wildlife
- Impacts from Minerals

Water Resources

Roads

Impacts from road management are the same as discussed under Alternative 1.

RMA's and Restoration

Acres in RMA's for perennial non fish-bearing streams are increased by 25-34 percent, resulting in a minor, beneficial impact for soils in these areas.

The alternative is the same as Alternative 1, except restoration would occur along 80 miles of stream every ten years, an addition of 30 miles over Alternative 1. This alternative uses more aggressive restoration techniques for faster restoration. There could be short-term, adverse impacts where heavy equipment is used for restoration within riparian areas. These could include increased compaction and elevated levels of erosion where soil cover was removed. Localized, moderate to major, long-term benefits to hydric soils would be expected from restoration efforts where native vegetation is reestablished.

Impacts from Soil Resources

Impacts are the same as under Alternative 1, with lighter utilization levels for domestic livestock in Wyoming big sagebrush habitat. This would add protection for biological crusts, resulting in a long-term, moderate to major, beneficial impact to the 35,202 acres of sagebrush stands not meeting rangeland health standards in the uplands that considered suitable for biological crust growth.

Impacts from Vegetative Communities Management

Riparian

Stubble height requirements of 6-8 inches where one-eighth of a mile of stream flows over public lands gives the greatest protection over the largest area for hydric soils in riparian areas that are grazed. Only 1 mile of stream would not meet the standard for monitoring stubble height. Moderate to major, beneficial effects would be expected, due to both the increase in acres of hydric soils protected and the higher riparian stubble height targets that would increase the protection of riparian soils.

Upland

Firebreaks between annual grass communities and Wyoming big sagebrush have the same effects as under Alternative 1.

Forage utilization would be set for light use, resulting in a moderate to major, beneficial effect from more cover and the future addition of more organics in the soil. This would also be beneficial for areas with biotic crusts. This alternative would be most protective of native Wyoming sagebrush stands and has the most active restoration. Forage utilization would be set for the lightest use at (21-40 percent). Improvement in range condition and, therefore, soils would likely be more rapid under this alternative than under the previously discussed alternatives due to lighter utilization that leaves more groundcover. As a result, moderate to major, long-term, beneficial effects would be expected.

Impacts of restoration would be the same as discussed under Alternative 1, but with more acres of restoration occurring, leading to a greater magnitude of impacts. Impacts of juniper treatments would be similar to Alternative 1 due to the potential for an increase in treatment acres.

Impacts from Woodland Management

Impacts would be similar to those discussed under Alternative 1 except this alternative treats 750 acres of forest and woodlands per year to improve overall tree vigor (versus 500 acres per year under alternatives 1-3). There would be local, minor, short-term, adverse effects from treatments due to soil disturbance and additional road use. Long-term benefits are similar to those discussed under Alternative 1, except that they occur over a slightly larger area.

Impacts from juniper treatments are the same as described under Alternative 1.

Impacts from Invasive Plant Management

The impacts are the same as Alternative 1 except where weed free areas have been delineated. The emphasis would be on increasing effects under EDRR to keep these desired native vegetation stands intact. This would provide a minor to moderate, long-term benefit due to the increase in protection to soil function in these local areas.

Impacts from Livestock Grazing

There are 334,260 acres available for grazing resulting in a reduction of 14 percent compared to Alternative 1. These numbers could change over time in conjunction with monitoring of range condition with rangeland health standards. Livestock would be removed if an area was not meeting rangeland health standards for two consecutive evaluations and does not show an upward trend. In this case, livestock would be removed from the pasture for the life of the RMP to allow for quicker improvement in rangeland conditions. Short-term, moderate improvements would be expected for the Decision Area. Long-term, major, beneficial effects would be expected across the Decision Area. Improvements would likely occur more rapidly under this alternative than they would under Alternative 1.

Impacts from Travel and Transportation

The impacts would be the same as Alternative 1, with the exception that there would be reduced maintenance on some roads in order to convert them to motorized primitive trails. If not maintained, this could have a negative impact over time as the roads became more rutted and erosion increases. Roads that have high impacts on landscape health and water would be relocated, redesigned, or decommissioned. This would, of course, reduce erosion from these roads.

As with Alternative 1, one percent of the land would be open to cross-country travel. The overall impacts would be similar to Alternative 1, but with added protection due to almost twice as much acreage being closed to motor traffic.

Lands and Realty

There are 74,971 acres as exclusion areas for land use authorizations, with an additional 44,328 acres withdrawn from wind development in the Wyoming big sagebrush. This alternative is similar to Alternative 1, but additionally protects riparian areas and Wyoming sagebrush communities from renewable energy development. This alternative has the most constraints regarding encouraging the use of existing energy corridors, rather than expanding corridors into new areas. This would result in a widespread, long-term, moderate to major, beneficial impact due to controlling the expansion of ground disturbances.

Impacts from ACECs

This alternative adds four ACECs to the ten existing ones and increases the number of acres to 93,991 (almost 22 percent of the Decision Area, which is double that of the 11 percent under the No Action Alternative). This would result in a moderate, long-term, beneficial impact.

*Alternative 5*Impacts Same as under Alternative 1

- Impacts from Minerals
- Impacts from Recreation
- Impacts from Travel and Transportation

Impacts Same as under Alternative 4

- Impacts from ACECs

Impacts from Water Resources*Roads*

Same as Alternative 1

RMAs and Restoration

RMA buffers would be the same as discussed under Alternative 4, with the same positive impacts for hydric soils.

This alternative has 80 miles of stream restoration with an emphasis on passive restoration. This alternative would have less short-term effects on hydric soils from the use of heavy equipment in the riparian area than Alternative 4. The same long-term, beneficial impacts to soils discussed under Alternative 4 would be expected.

Impacts from Soil Resources

Impacts would be the same as those described under Alternative 4.

It would be expected that soils would benefit in the short term from lack of grazing on 303(d)-listed streams, which would result in more vegetative cover, less erosion, and reduced sedimentation. As a result, this would lead to both short- and long-term, widespread, beneficial, moderate to major impacts.

Within pastures that are no longer grazed, there would be long-term potential for the increased vegetation in sagebrush communities to lead to greater fire intensities, increased non-native annuals, and more erosion (see the Vegetation Resource section for more details).

Impacts from Vegetative Communities

Riparian

Impacts from stubble heights targets would be the same discussed under Alternative 4, with increased beneficial impacts from not allowing grazing on 303(d)-listed streams or tributaries within the same pastures. No grazing would occur within pastures along 303(d)-listed streams, which includes many of the larger streams within the Decision Area. This would improve riparian vegetative conditions along these streams, as well as other channels within the same pastures. This would result in a short- and long-term, major, beneficial impact for hydric soils.

Upland

Firebreaks between annual grass communities and Wyoming big sagebrush have the same effects as under Alternative 1. Forage utilization would have the same effects as discussed under Alternative 4.

Restoration actions would focus on natural processes. This would be slower and in the case of annual grasses, less effective. Generally, removal of annual grasses takes active management. This alternative would not have the short-term, minor, adverse effects from active restoration, but also would not have the local, moderate, long-term, beneficial impacts caused by restoring native grasses in Wyoming big sagebrush communities.

Impacts from Invasive Plant Management

This alternative has the same impacts as Alternative 4, except other methods would be prioritized in the treatment of invasive plants before herbicides are used. There are certain plants that do not respond to manual or mechanical methods. These would still need herbicides for effective control. Overall, there would be negligible effects from this policy.

Impacts from Wildlife Management

Impacts to soils from wildlife management are similar to Alternative 1.

Fire, rather than other fuel management activities, would be used to improve range ecosystems. Localized, short-term, adverse effects would be expected to soils from activities associated with fuels reduction, but this would also lead to long-term benefits.

Impacts from Woodland Management

The types of impacts would be similar to those described under Alternative 1. However, the intensity and extent of impacts would be greatly reduced due to treating half the amount of acreage that would be treated under Alternative 5.

Impacts from Livestock Grazing

Grazing would occur on the least number of acres with the lowest AUMs. Grazing would not be allowed on 139,041 acres where 303(d)-listed streams flow through the allotments. This would remove approximately 33 percent of the acres grazed under the No Action Alternative. Not allowing grazing along 303(d)-listed streams would have an immediate, long-term, major benefit to hydric soils along these streams. Most of the allotments removed would be in the Powder River, Burnt River, and Brownlee Reservoir areas. These are also the areas where streams are not currently meeting PFC. Not grazing these areas would be expected to lead to the recovery of the riparian vegetation and to increase the shrub component where vegetation is present. As a result, this would have both a short- and long-term, major, beneficial impact to riparian soils in these areas.

Impacts from Lands and Realty

This alternative has the largest number of acres in exclusion areas, including a 45 percent increase in exclusion acres compared to Alternative 1. This would have the same benefit as discussed under Alternative 1, but to a greater magnitude due to the larger area impacted.

Wind exclusion acres are increased under this alternative to protect sage-grouse leks. This would be in Wyoming big sagebrush areas, which are concentrated in the Powder River and Burnt River subbasins. This would be a long-term, moderate, beneficial impact in these subbasins.

Impacts from exclusions from mining are the same as discussed under Alternative 1, but have a greater magnitude due to an increase of approximately four times the area being excluded.

Alternative 5a

Impacts from Livestock Grazing

For Alternative 5a, no domestic livestock grazing would be allowed. This would be immediately beneficial to riparian vegetation, hydric soils, and stream bank stability. Riparian vegetation would reach its site potential most quickly under this alternative, resulting in widespread, short- and long-term, major, beneficial effects.

There would be no livestock grazing under this alternative and, therefore, no present or future effects due to livestock. Removing livestock would lead to increased vegetation cover in many areas, which stabilizes soils. Areas that are presently trampled around salt licks and water troughs would heal over time. The first vegetation growing at these sites would likely have a high component of invasive plants due to the disturbed nature of these sites and would need some active restoration.

There would be lower impacts from trampling on biological crusts and, therefore, this alternative would be expected to have a long-term, major, beneficial impact.

Eliminating livestock grazing under Alternative 5a would contribute to increased fine fuels. This could potentially lead to more frequent and larger wildfires and an increase in non-native grasses. A more frequent fire regime could result in an associated increase in sediment and potential removal of shading vegetation, resulting in long-term, minor to moderate, adverse impacts. This effect would be dependent on the extent and frequency of fires in these areas.

c. Cumulative Impacts

Table 2.2 in Chapter 2 gives numerical differences in alternatives. It is the additive influence of these changes in many resources that have collectively significant effects over a period of time.

No Action

All actions on land outside of public lands would be the same under all alternatives. Ownership within the Decision Area tends to be mixed parcels of private and BLM land. The USFS manages much of the land at higher elevations. Past actions from all management areas, both private and government, still affect soil productivity. They include past grazing practices, logging, mining, roads, buildings, fires, invasive plants, and noxious weeds.

Changes in management over the last 15 years have been improving conditions on many private agricultural lands. The NRCS, soil and water conservation districts, ODFW, and watershed councils all work cooperatively with land owners to improve stewardship of lands.

Sample projects in the Powder River/Brownlee Dam subbasins include:

- Confined Animal Feeding Operation improvements
- Soil moisture and weather measurements for irrigation management
- Wetland and stream rehabilitation for wildlife and water quality improvements

According to the NRCS profile on the Powder River watershed, soil erosion on private land has been going down over the last 20 years (NRCS 2006). Through NRCS programs, many farmers and ranchers have applied conservation practices to reduce the effects of erosion by water. As a result, erosion rates on crop and pasture lands fell 55 percent, from 0.9 tons/acre/year to 0.4 tons/acre/year, from 1982 to 1997. This is due to improved conservation practices by many private land owners. While similar information is not available for the entire Planning Area, an assumption was made that in general, conservation practices on private land have improved over the last 20 years. However, many of the improvements on private land depend on voluntary changes, so adverse impacts to soil may continue in many areas.

Under all alternatives it is reasonably foreseeable that the expansion of ROWs, wind energy developments and other activities that expand the road network would continue on both public and private land. Population is expected to grow within the Decision Area, putting more pressure on limited soil and water resources.

Changes in management on public lands over the last ten years have led to general improvements in soil management through use of BMPs and the implementation of soil protective measures associated with PACFISH. These provide guidance for acceptable amounts of soil disturbance, soil cover, and restoration practices. The implementation of Rangeland Standards and Guidelines (BLM 1997) and associated changes in timing of grazing has led to improvement in soil cover in many areas, which lessens erosion and improves soil productivity. These improvements would be expected to continue under this alternative.

This alternative has several policies that limit or slow beneficial impacts from management. There would be a lack of protection for biological crusts and lack of protection of Wyoming big sagebrush from fire near non-native annual grasses. The spread of annual grasslands would be expected under this alternative. As the fire regime changes with the increase of annuals, this would have a long-term, adverse effect on soils due to increased erosion.

For hydric soils there would be lack of stubble height monitoring along streams and no shrub utilization standards. While soils are improving in many areas due to implementation of Rangeland Standards and Guidelines (BLM 1997), the expanded use of OHVs and expanded ROWs would have a negative effect.

Overall, the long-term, minor, beneficial impacts would be expected for the Decision Area with local areas of moderate, negative impacts from expanded ROWs and expanded OHV use. Long-term, minor to moderate improvements would be expected for riparian soils. Long-term, minor, adverse impacts would be expected for biological crusts.

Alternative 1

Cumulative impacts for Alternative 1 would result in a short- and long-term, moderate to major, beneficial impact to soil resources compared to the No Action Alternative. The primary changes are from changes in management of livestock, stubble height targets, limiting OHV access, and limiting the expansion of ROWs. Other minor improvements would occur from the addition of stream miles for restoration and potential improvements or the decommissioning of roads impacting streams. Fuels reduction projects could have local short-term effects, but have the potential to lower the risk of large wildfires on any ownership.

No reasonably foreseeable changes in management on private land are known. The USFS is redoing the Forest Plan, so while changes in management could occur, the details are unknown. For the BLM, this alternative would be more protective than the No Action Alternative. It would be expected that soil conditions would improve somewhat more quickly on BLM-controlled land under this alternative than under the No Action Alternative due to the higher degree of protection

and the emphasis on restoration (see Table 2.2 in Chapter 2 for detailed differences in alternatives). There would be long-term, moderate to major, beneficial effects on most soils. Beneficial effects to hydric soils would be long-term, and moderate to major. For biological crusts, long-term, minor to moderate, beneficial effects would occur.

Alternative 2

Alternative 2 would have minor beneficial impacts to soils from changes in livestock grazing, and the closing of most of the Decision Area to cross-country traffic. This alternative closes the least number of acres for use of ROWs and to mining. This alternative has the lowest riparian stubble height requirements, monitors fewer riparian areas, and does not have much protection for biological crusts. This alternative has the least improvement from the No Action Alternative (see Table 2.2 in Chapter 2 for differences in alternatives).

The trend for improved soil condition would be expected to be slower under this alternative than under Alternative 1. Closing parts of the area to OHV use and stubble height targets on 74 percent of the riparian areas not meeting rangeland health standards would give added protection to hydric soils. This alternative has the least protection for biological crusts of the action alternatives and less land closed to ROW expansion. There would be additional beneficial impacts over the No Action Alternative but in general the long-term, beneficial impacts would be moderate. Long-term, beneficial impacts to hydric soils would be minor. Beneficial impacts for biological crusts would be widespread and beneficial, but negligible.

Alternative 3

Alternative 3 would have a minor to moderate, beneficial impact to soils resources primarily from changes in grazing and a drop in acres open for cross-country travel. Stubble height targets would be used on 94 percent of the riparian areas not meeting rangeland health standards. Much of the Decision Area would be closed to cross-country OHV use (see Table 2.2 in Chapter 2 for differences in alternatives). For protecting soil productivity, impact from this alternative would be between Alternative 1 and Alternative 2. Generally beneficial effects would be long-term, widespread, and moderate. Beneficial impacts to hydric soils would be long-term and moderate. Impacts to biological crusts would be widespread, long-term, and negligible.

Alternative 4

This alternative has the same area open to OHV use and has slightly more acres in exclusion areas than Alternative 1 (see Table 2.2 in Chapter 2 for differences in alternatives).

This alternative has the strongest emphasis on restoration and the most active restoration program. There would be short-term effects to soils due to the number of acres of aggressive restoration. There could be minor, short-term effects from this, but a long-term, minor to moderate, localized improvement in soil function. The light grazing in functioning Wyoming

big sagebrush communities would have an immediate, widespread, and moderate beneficial effect on soils.

Riparian stubble height requirements are the highest of the action alternatives for the largest positive effect. This alternative would lead to widespread, major, short- and long-term improvements in soil function and productivity due to the focus on restoration, light grazing, high stubble height, and closing much of the area to OHV use. There would be both short- and long-term, major, beneficial impacts to hydric soils. This alternative would have short- and long-term, widespread, moderate to major, beneficial impact on biological crusts.

Alternative 5

Alternative 5 would have very similar beneficial effects to Alternative 4 with more acres in ROW exclusion areas for more beneficial impact (see Table 2.2 in Chapter 2 for differences in alternatives). Improvements would be expected to occur more slowly in some areas due to the emphasis on passive restoration but more quickly in the riparian areas of 303(d)-listed streams due to the removal of livestock. Overall, the impacts would be expected to be widespread, short- and long-term, major, and beneficial. The effect on biological crusts would be the same as Alternative 4.

Alternative 5a

Alternative 5a would be the same as Alternative 5 except where livestock is concerned.

Removing livestock grazing from riparian areas would have an immediate, widespread, major beneficial effect on hydric soils as riparian vegetation increased more quickly and trampling of banks by livestock ended.

Overall impacts to soils would be the same as Alternative 4. The effect on biological crusts would be similar but occur more quickly than under Alternative 4 due to the lack of trampling from livestock.

However, there are some uncertainties associated with this alternative. In the long term, removal of livestock could increase fuel loading to the point where future fires would have a higher intensity, severity, and frequency (see Vegetation Management Section). In turn, this would lead to an increase in invasive plants, particularly non-native annual grasses. Along with annual grasses, there would be a more frequent fire return interval. Where this occurred, there would be a long-term, adverse effect to soils due to the sparse cover provided by non-native grasses and the frequent removal of cover and organics and higher rates of erosion. Removal of livestock on public land could lead to more pressure on private land. While riparian areas on BLM-managed lands would improve, there would be potential for higher numbers or longer periods of livestock on private pastures, leading to adverse impacts to soils on private land.

In summary, this alternative would have long-term, major, beneficial impacts overall, but with uncertain effects in the special circumstances discussed above.

5a. VEGETATIVE COMMUNITIES (RANGELAND AND RIPARIAN)

This section describes potential direct, indirect, and cumulative impacts on rangeland vegetative communities from implementation of resource management actions proposed under the various alternatives. Forested vegetative communities are addressed in the section immediately following this section. Rangelands are defined as any extensive area of land that is occupied by herbaceous or shrubby vegetation grazed by domestic or wild herbivores. Of special concern are impacts to Wyoming big sagebrush, mountain big sagebrush, and riparian/wetland communities, which account for 68 percent of the range vegetative communities within the Decision Area. As discussed in Chapter 3, vegetative monitoring has shown that livestock grazing and fire suppression management or the lack thereof, has the largest impacts on these community types, with mining, ROW development and maintenance, and recreation having a lesser impact to range vegetative communities. Range vegetation is susceptible to adverse impacts due to increased soil erosion, plant mortality, competition by invasive plants, reduced ground cover, change in water flow patterns, reduced soil surface resistance to erosion, change in plant community composition, change in functional/structural groups, increased/decreased litter amount, and reduced reproductive capability of perennial plants (Pyke et al. 2002).

The BLM developed management actions in this Draft RMP to reduce the impacts from livestock grazing, fire suppression, mining, recreation, and ROW development and maintenance within the Decision Area. Each alternative would result in a varying amount of protection and rate of improvement to vegetative resources, which is dependent on the intent of the alternative. Additionally, the BLM developed management actions to address differing views on fire return intervals within the Wyoming big sagebrush plant community as discussed in Chapter 3.

a. Indicators, Methodology and Assumptions

Vegetative Communities (Rangeland and Riparian) Indicators

Results from rangeland health assessments and vegetation inventories were the primary indicators used to determine current vegetation condition. Vegetation communities the BLM assessed for rangeland health include mountain big sagebrush, Wyoming big sagebrush, riparian areas, juniper woodlands, and mixed grassland. Non-native seeded grasslands and invasive annual grasslands were also assessed. In general, dry and moist forests that contain commercially viable timber species (e.g., grand and Douglas-fir) were not assessed using this method since these plant communities are not typically considered rangelands. As a result, these forest communities are discussed in the Vegetative Communities (Forest Vegetation) section. Under Rangeland Standards and Guidelines (BLM 1997), rangeland health assessments use five standards: (1) watershed function/uplands; (2) watershed function/riparian; (3) ecological processes; (4) water quality; and (5) native, threatened and endangered (T&E), and locally important species. As discussed in Chapter 3, watershed function/uplands and ecological

processes were combined and from here forward will be referred to as “upland rangeland health standards.” This section will examine the potential effects of each alternative to each of the above standards except for native, T&E, and locally important species and water quality, which will be discussed in the fisheries, wildlife, water resources, and special status species sections of this chapter.

Results from vegetation trend, ground cover monitoring, and multiple indicator monitoring (MIM) are the primary indicators used to determine if land management changes are making progress towards meeting upland rangeland health standards and watershed function/riparian. In general, an upward trend or increased ground cover would signify making progress towards meeting upland rangeland health standards. Reductions in stream width-to-depth ratio and substrate embeddedness or increased stream bank stability would signify making progress towards meeting rangeland health standards for watershed function/riparian. Conversely, downward trend or reduced ground cover may signify not making progress towards meeting upland rangeland health standards. Increases in stream width-to-depth ratio and substrate embeddedness or decreased stream bank stability would signify not making progress towards meeting rangeland health standards for watershed function/riparian.

Vegetative Communities (Rangeland and Riparian) Methods

The BLM reviewed the best available peer-reviewed science to aid in determining the potential effects of the No Action Alternative and five action alternatives on native and non-native plant communities. When contradictory results were found in the scientific literature, the BLM documented the discrepancy and used the results that were consistent with BLM-collected data to assess the effects.

The BLM conducted forest inventory and aerial photograph analysis to determine the current acreage of juniper. The BLM used the NRCS soil survey to map the potential sagebrush, riparian, forest, and grassland community types, and to determine the potential natural acreage of juniper forest.

The BLM used a grazing allotment file search and BLM employee observations to map the locations of non-native grass communities (Rademacher 2010).

Incomplete or Unavailable Information

At the time of writing the effects section, approximately 62 percent of the rangelands within the Decision Area have been assessed for upland rangeland health standards (ecological processes, and watershed function/uplands). A comparison between rangeland health assessment data and the 1980 rangeland inventory was conducted to determine if a relationship exists. It was determined that a strong relationship existed between upland rangeland health standards and the 1980 rangeland inventory. Specifically, it was determined that there is an 80 percent similarity between the 1980 inventory and ecological processes. It was also determined that an 80 percent similarity exists between watershed function/uplands and the 1980 rangeland inventory (see

Appendix 3.2). However, the relationship only holds true for native sagebrush and non-native annual grass communities (see Appendix 3.2). Therefore, the BLM concluded that the 1980 rangeland inventory can be used as a proxy for rangeland health in native rangelands. No relationship existed between upland rangeland health standards and the 1980 inventory for non-native perennial grass communities. As a result, approximately 10 percent of the rangelands within the Decision Area are not covered by either the 1980 inventory or rangeland health standards.

At the time of writing this impact analysis, approximately 80 percent of the rangelands within the Decision Area have been assessed for rangeland health, watershed function/riparian standard. Specifically, the Baker Miscellaneous is the only GU remaining where PFC monitoring has not been fully completed. To date, PFC has been completed within 60 percent of the 218,605 acre Baker Miscellaneous GU, which equates to approximately 80 percent of the Decision Area. Although no additional data exists for the remaining 20 percent of the riparian areas within the Baker Miscellaneous GU, the BLM assumes that the ratio for meeting to not meeting the standard for watershed function/riparian would be similar to what has been surveyed to date for the other 13 GUs within the Decision Area (i.e., for every 10 miles of riparian area meeting standards there are 3 miles that do not meet standards). Therefore, the BLM assumes that there are 54 miles of riparian areas left to be surveyed, of which it is also expected that 18 would not meet watershed function/riparian.

Vegetative Communities (Rangeland and Riparian) Assumptions

- An intensive inventory of non-native annual grass was not completed. Rather, an allotment file search and field observations were used to map the locations of non-native annual grass stands. It is assumed that not all of the non-native annual grass stands were mapped and the acreage identified in this document may be lower than what actually exists. It is thought that discrepancies may occur in the small (10-100 acres), scattered tracts of land (i.e., custodial [C] grazing allotments) where the BLM has limited access and does not inspect on a regular basis compared to Improve (I) or Maintain (M) allotments.
- It is assumed that using the 1980 rangeland inventory to fill in the rangeland health data gap may result in 6 percent error over the entire Decision Area. Specifically, the 1980 rangeland health inventory is being applied to 28 percent of the resource area. There is a 20 percent inherent error with using the 1980 rangeland health inventory to determine rangeland health. Therefore, the total margin of error from using the 1980 rangeland health inventory is: $0.28 \times 0.20 = 0.06$, or 6 percent.
- Changing livestock management to regulate grazing during the critical growth stages (boot to soft dough) or sagebrush reduction projects (prescribed fire, brush beating, or herbicide use) has the potential to improve rangeland health for ecological processes and watershed function/uplands on 71,065 acres.
- Changing livestock grazing, improving roads, and restoring historic mining operations has the potential to improve watershed function/riparian on 207 miles of stream.

- Stage II and III juniper stands in the expansion area are assumed not to meet rangeland health standards for biological integrity and soil and site stability.
- The action alternatives analyzed have the potential to affect vegetation differently in terms of the relative abundance of species within communities, the relative distribution of plant communities, and the relative occurrence of seral stages of those communities.
- Reduction in structural diversity and ground cover is associated with increased soil erosion. Soil erosion rates on shrub-steppe communities are highly dependent on the proportion of soil surface protected by vegetation from raindrop impact. Erosion rates increase exponentially as plant cover decreases (Meeuwig 1970).

Magnitude of Impacts to Vegetative Communities (Rangeland and Riparian)

In this analysis, the intensity of impacts on vegetation is defined as follows:

Negligible: Management actions would have a detectable effect at the plot/stream reach scale. Specifically, statistical changes in key plant frequency, ground cover, stream bank width, and/or embeddedness (the degree to which fine sediments surround coarse substrates on the surface of a streambed) may occur on 1-2 monitoring plots within a grazing pasture; however, these changes would not affect the overall rangeland health rating of the pasture, allotment or watershed.

Minor: Management actions would have detectable effects on rangeland health at the pasture scale. Specifically, statistical changes in key plant frequency, ground cover, stream bank width, and/or substrate embeddedness would occur within a pasture(s). However, these changes would not affect the overall rangeland health rating of the allotment or watershed.

Moderate: Management actions would have a detectable effect on rangeland health at the allotment scale. Specifically, statistical changes in key plant frequency, ground cover, stream bank width, and/or substrate embeddedness may affect a majority of uplands or riparian areas within an allotment(s). However, these changes would not affect the overall rangeland health rating of the watershed. The use of SOPs or BMPs to offset adverse effects could be extensive, but procedures would have a high to moderate probability of success.

Major: Management actions would have a detectable effect on rangeland health at the watershed scale. Specifically, statistical changes in key plant frequency, ground cover, stream bank width, and/or substrate embeddedness may affect a majority of uplands or riparian areas within a watershed(s). Extensive use of SOPs for offsetting adverse effects would be necessary, and the probability of success is expected to be slight to low.

The types of effects (adverse or beneficial), spatial and temporal scales, and probability determinations used in this analysis to describe the intensity of impacts identified above are as follows:

Impacts:

Adverse Impacts: Actions would result in vegetative species' abundance or biological diversity being altered beyond the limits of normal variability. A species, plant community, or habitat recognized for scientific, ecological, recreational, or commercial importance would be harmed. A native biological community would be altered or destroyed to the degree that it is prevented from returning to its natural ecological state.

Beneficial Impacts: Actions would result in the maintenance or restoration of vegetative communities. Plant diversity and structure would be made or maintained as sufficient to support normal nutrient cycling and energy flows, as well as vigorous growth and adequate distribution, to ensure reproductive success and recruitment when favorable events occur, thereby permitting recovery from localized catastrophic events. Plant communities would reflect the desired plant community (DPC) or potential natural community appropriate for the site.

Spatial Scale

Plot/Stream Reach Scale: Anticipated direct and indirect effects would be detectable within a trend or MIM plot(s); however, the area affected would not be large enough to change the rangeland health rating of the grazing pasture, allotment, or watershed.

Pasture Scale: Anticipated direct and indirect effects would be detectable on a grazing pasture(s) within an allotment. The area affected would be large enough to change the landscape health rating of grazing pasture(s); however, the affected area would not be large enough to change the rangeland health of the allotment or watershed.

Allotment Scale: Anticipated direct and indirect effects would be detectable on a grazing allotment(s) within an allotment. The area affected would be large enough to change the landscape health rating of grazing pasture(s); however, the affected area would not be large enough to change the rangeland health of the watershed.

Watershed Scale: Anticipated direct and indirect effects to rangeland health would be detectable within a 5th field watershed. The effects would occur within a majority of the allotments within the 5th field watershed.

Temporal Scale

Short-term: Anticipated effects occur within 0 to 5 years of project implementation.

Moderate-term: Anticipated effects occur within 5 to 15 years of project implementation.

Long-term: Anticipated effects occur more than 15 years after project implementation.

Probability

Probability refers to the likelihood that a management action would have a measurable adverse or beneficial effect on vegetation resources, and ranges from slight to high:

Slight probability: 0-25 percent chance of having a measurable effect.

Low probability: 26-50 percent chance of having a measurable effect.

Moderate probability: 51-75 percent chance of having a measurable effect.

High probability: 76-100 percent chance of having a measurable effect.

b. Impacts to Vegetative Communities (Rangeland and Riparian)

Impacts to rangeland and riparian vegetative communities in the Planning Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetative Resources
- Invasive Plants and Noxious Weeds
- Wildlife
- Special Status Species (Wildlife)
- Fire and Fuels Management
- Cultural Resources
- Facilities
- Livestock Grazing
- Recreation/Travel and Transportation
- ACECs
- Lands and Realty

Impacts Common to All Alternatives**Impacts from Cultural Resources**

In general, cultural resources management under all alternatives would reduce the area where vegetation restoration treatments could occur. Specifically, soil disturbing seeding methods or prescribed fires would not be authorized where the treatment would negatively impact an important cultural/historical site. In most cases, these sites are relatively small (rarely over 50 acres in size) and can be avoided. Avoiding cultural sites while restoring non-native grass communities could thus result in isolated 1 to 50 acre islands of undesirable vegetation within the seeded area. Overall, adverse effects on rangeland health would be long-term and negligible.

Impacts from Facilities (Including Facilities addressed under Livestock Grazing)

Construction of facilities and range improvements, such as campgrounds, interpretive sites, water developments (e.g., reservoirs, wells, and springs), and fences would have a high probability of long-term, negligible effects on native vegetation resources. Direct impacts would result from the removal or reduction of vegetation, which would be limited to the immediate project area for fences and interpretive sites. In addition, new and/or expanded facilities, campgrounds, livestock corrals, and stock ponds or troughs could lead to increased use, which, in turn, could lead to increased trampling of vegetation and compaction of soils to a level that reduces the vigor of native plants and produces conditions favorable to the establishment and spread of noxious weeds. No literature exists on the depth of edge influence (DEI) for noxious and invasive weeds around facilities, campgrounds, corrals, or livestock water; however, the BLM expects the DEI to be the same or less than the 50 feet identified for heavy equipment firelines in Wyoming big and three tip sagebrush communities (Hofla et al. 2008). Since there has only been a need to construct no new campgrounds, 1 livestock coral, 9 reservoirs, and 12 spring feed troughs during the previous RMP (1986 to present), future demands would likely continue to be low (totaling 5-20 new projects). Most of the new projects would develop springs to pipe water to troughs since very few, if any, reservoirs would be constructed due to the increased risk of West Nile virus to sage-grouse populations (Naugle, pers. comm. 2010). Therefore the estimated acres of impact, which takes into account a 50 foot DEI and number of developments, would range from 1 to 36 acres (5 projects $*\pi 50\text{foot DEI}^2=39,250\text{sf}$ or 0.9 acre and 20 projects $*\pi 50\text{foot DEI}^2=157,000\text{sf}$ or 3.6 acres). Therefore the total adverse effect to upland rangeland health would be long-term and negligible.

*No Action Alternative*Impacts from Water Resources*Decommissioning or Improving Roads in Riparian Conservation Areas (RCAs)*

Rangeland health assessment, specifically PFC, shows roads are the second biggest contributing factor for not meeting rangeland health standards for watershed function/riparian. Roads administered by the BLM are currently having adverse moderate impacts to watershed function/riparian along approximately 32 miles of riparian areas in the Decision Area. The No-Action Alternative does not give direction on decommissioning or improving such roads, which would allow for the continuation of such impacts. Therefore, roads would continue to have long-term, minor, adverse effects on rangeland health.

Impacts from Soil Resources*Improve Soil Resources*

The No Action Alternative would continue to improve soil resources in areas where significant progress could be made at the watershed scale. Past management focused on soil protection

within non-native annual grass communities by seeding high site-potential areas with desirable vegetation and refining livestock management in native communities. In general, the seedings were successful in improving soil resources within 75 percent of the non-native annual grass communities. However, 3,000 acres of high site-potential non-native annual grass community remain. These acres would not be treated to improve soil resources under the No Action Alternative due to their small size and fragmented orientation within the Decision Area. Specifically, the No Action Alternative only focuses on improving soil stability on large contiguous tracts of land where significant progress could be made. Therefore, small to midsize projects (at the pasture or allotment scale) to improve soil resources would not be emphasized and would result in minor, long-term, adverse effects to upland rangeland health.

The No Action Alternative would focus on improving a portion of the 71,065 acres of native sagebrush that is not meeting upland rangeland health standards, which includes not meeting soil and site stability. Management actions would concentrate on changing livestock season of use and stocking levels, and, to a lesser degree, reducing sagebrush cover (e.g., mechanical, prescribed fire or herbicide treatments) in order to increase litter, annual yield, and reduce bare ground (Davies et al. 2009), which has been shown to reduce soil erosion (Derner and Whitman 2009). However, studies have shown that refining or excluding livestock grazing would not necessarily increase litter or grass cover (Courtois et al. 2004; West et al. 1984). Areas where upland rangeland health standards are not expected to increase are within pastures that have sufficient livestock deferment during the critical growth stage of the targeted perennial grass specie(s) (Brewer et al. 2007). Most allotments within the Decision Area, excluding C allotments, were changed to a rest rotation or deferred rotation grazing schedule which have sufficient deferment during the critical growth stage. Therefore, refinements to livestock grazing to improve native grass vigor would have a minor to moderate effect on rangeland health.

Sagebrush canopy reduction projects have been used limitedly to improve soil resources, which are an element of upland rangeland health standards, and would continue into the future. However, there would be a risk of long-term, adverse effects from the conversion of native Wyoming big sagebrush stands into a non-native annual grass. The level of risk would be dependent on the method used, the amount of soil disturbance, the mortality of native perennials, and the proximity to non-native annual grasses. In general, low-ground disturbing methods (mechanical and herbicide sagebrush control) have a lower probability of adverse effect than prescribed fires (Hyder and Sneva 1958; Bunting et al. 1987; Bates et al. 2009). The probability of a prescribed burn converting a native stand of Wyoming big sagebrush to a non-native annual grass stand would be reduced if the fire prescription was designed to produce lower fire severities than historic levels (pre 1890's, before cheatgrass invasion). The acreage of sagebrush canopy reduction treatments most likely would be no more than the acreage treated in the past 20 years (2000-3000 acres). The magnitude of effect would be negligible to moderate, depending on the acres treated, and should be long-term since sage brush reduction treatments typically last 15-50 years (Bunting et al. 1987). However, there would be a risk of converting native sagebrush stands into non-native annual grasses (Bunting et al. 2007). If this were to occur, the adverse effect would be moderate and long-term.

Impacts from Vegetative Communities*Management of Upland Grass and Shrub Vegetation*

While the No Action Alternative states that vegetation would be managed to resemble a mid- to climax seral state, depending on the GU, current policy requires that vegetation be managed to meet or move towards meeting rangeland health standards (BLM 1997). Rangeland health takes into consideration watershed function/uplands, watershed function/riparian, biological integrity, and native, T&E, or locally important species. Managing for rangeland health allows a greater flexibility in the proportion of vegetation stands in early, mid, late seral, or climax state, which would be dependent on management focus (i.e. livestock, sagebrush obligate species, fuels or natural processes). This flexibility allows management to be tailored to resource objectives or management focus rather than seral state.

Since the No Action Alternative does not identify a specific management focus for vegetative communities, the only requirement is to meet all five of the rangeland health standards. A variety of management focuses could result in meeting rangeland health standards, which can have various impacts on the resultant vegetation structure and composition. In general, livestock management focus would result in a higher native grass component (early and mid seral), whereas sagebrush obligate wildlife species and native processes focus may result in a higher sagebrush component. Therefore, it is unclear if vegetation would be managed to promote livestock grazing, sagebrush obligate species habitat, or natural processes under the No Action Alternative. If the management focus was for livestock grazing, sagebrush reduction projects would occur in areas that have high sagebrush cover (i.e., greater than 20 percent). In addition, livestock grazing would be regulated during the critical growth stage, which would result in a major beneficial effect to rangeland health. While a management focus on sagebrush obligate species or for natural processes would make the same changes to livestock grazing, sagebrush reduction projects would only occur on small acreages (0-500 acres per decade). Areas that have low grass production due to elevated sagebrush cover would be viewed as being in the natural range of variability under the management focus on sagebrush obligate species or for natural processes, even though upland rangeland health would not be met. Therefore, management focuses on sagebrush obligate species or for natural processes would result in less improvement (moderate to major, beneficial effects) when compared to a livestock management focus.

Upland Utilization Target

The maximum upland grass utilization targets for rotational, spring/fall, deferred, and rest rotation grazing systems set under the current Baker RMP (BLM 1989), which would be followed under the No Action Alternative, could have a high probability of causing allotments to fail to meet rangeland health standards. The current Baker RMP (BLM 1989) followed targets recommended in the Ironside EIS (BLM 1981), which used what was then “current science,” to set maximum utilization at levels designed to fit the benefits of the various grazing systems while still maintaining and improving the vigor of the key species. Since 1981, however, additional studies have been conducted that indicate the maximum utilization targets set by the

Ironside EIS were, in many instances, too high (Brewer et al. 2007 and Holecheck 1999), especially maximum utilization targets set for continuous, mid spring, spring/summer, or rotational grazing systems. These studies are further supported by 71,065 acres of sagebrush currently not meeting upland rangeland health standards. It should be noted that the 71,065 acres of sagebrush not meeting rangeland health standards is due to the combination of fire suppression and livestock grazing. Current grazing systems and associated targeted utilization levels, which would continue under the No Action Alternative, would probably continue to have a minor to moderate, short-term, adverse effect on rangeland health. On the other hand, future refinements to livestock grazing management during the critical growth stages would have a high probability of resulting in minor to moderate, beneficial effects when compared to current conditions. These beneficial impacts may take up to 20 years to realize, depending on how many refinements to the current grazing system are needed. Beneficial impacts may include reductions in rill erosion, pedestals, bare ground, gullies, wind-scoured areas, litter movement, soil surface loss, mortality, invasive plants, as well as improved water flow patterns, soil surface resistance to erosion, plant community composition, functional/structural groups, litter amount, and the reproductive capability of perennial plants (Pyke et al. 2002).

Riparian/wetland Utilization/Stubble Height Target

The No Action Alternative gives no direction for setting riparian forage utilization/stubble height targets, which means that the livestock allotments in GUs that do not have current permit renewal NEPA completed would be without such targets in the short to mid-term. These GUs include Keating, Powder River, Pedro, and Baker Miscellaneous, totaling 86 I or M allotments.

Riparian utilization and stubble height monitoring has not been conducted any of the 86 I or M allotments within the Keating, Powder River, Pedro, and Baker Miscellaneous GUs. A rough riparian utilization estimate obtained by looking at the upland utilization, season of livestock use, and accessibility to livestock indicates that current livestock management is not consistent with meeting rangeland health standards for watershed function/riparian (Parsons et al. 2003 and Clary 1999). Specifically, there is a high probability the assumed riparian utilization is in the range of moderate (41 to 60 percent) to heavy (61 to 80 percent). This assumed riparian utilization level would, in many instances, result in a non-functioning condition (Clary 1999), as illustrated by 117 miles of streams in the Decision Area that are currently functioning at risk or not functioning, due in-part to current livestock grazing. On the other hand, the No Action Alternative would eventually set appropriate riparian targets through grazing permit renewal NEPA, which may take up to an additional 5-10 years to complete. Adverse effects to rangeland health standards would continue in the short term until stubble heights targets have been established and an adequate amount of time has passed to allow the riparian area to heal. In most instances, 5-10 years after establishing stubble height targets would be sufficient to have a significant effect on rangeland health, resulting in major beneficial effects such as increased woody vegetation and deep-rooted herbaceous vegetation adequate for stabilizing stream banks (BLM 2006, Clary 1999 and Clary and Lininger 2000). Consequently, the No Action Alternative has the potential to improve the function and condition of 117 miles of riparian area that are currently in an undesirable condition for the long term. However the magnitude of

beneficial effect would be dependent on the miles of stream improved by changes to livestock grazing. Since 85 percent of the miles of streams affected by livestock grazing are also affected by at least one other factor (i.e., wildlife, roads or mining), the No Action Alternative has a high probability of improving between 19-117 miles of streams, which would equate to minor to major beneficial effects.

Ground-Disturbing Projects in Wyoming big Sagebrush Communities

Ground-disturbing projects such as road construction, renewable energy developments, and facilities construction would be authorized in the Wyoming big sagebrush community under the No Action Alternative. There would be no requirement to reclaim acres of converted Wyoming big sagebrush communities for every acre consumed by a project. Future development demands would therefore lead to changes in vegetation composition and structure and cause increased fragmentation of this important community type over the long term. Adverse impacts would be long-term and negligible to moderate, depending on the amount of acres the project(s) disturbed. Some impacts would also be irreversible, depending on the site potential of the disturbed area.

Road Densities in Wyoming Big Sagebrush

Roads have adverse and beneficial aspects concerning vegetative connectivity. Roads act as a noxious and invasive weed corridor/reservoir that can promote the spread and proliferation of these species (Larson 2003). As discussed in Chapter 3, the Wyoming big sagebrush community is the most susceptible of all the sagebrush communities within the Decision Area to be invaded by non-native annual grasses (Bunting et al. 1987). In fact, past land management has led to a 26 percent reduction in Wyoming big sagebrush communities within the Decision Area due to the conversion into non-native annual grass communities. Since roads act as a conduit for the spread and dissemination of non-native annual grasses and other noxious weeds, building additional roads in Wyoming big sagebrush communities has the potential to increase the conversion into non-native annual grasslands and reduce habitat connectivity. The No Action Alternative does not give direction for road construction or decommissioning in the Wyoming big sagebrush community, which would allow for the continuation of the adverse impacts noted above, which would range from negligible to minor, depending on the resultant road density.

Roads can also act as firebreaks aiding in reducing fire frequency to a level that maintains native Wyoming big sagebrush stands. Fire is the main cause of the conversion of Wyoming big sagebrush to a non-native grass community within the Decision Area. As a result, continuing the No Action Alternative would maintain or increase the density of roads that could potentially aid in reducing fire frequency in the Wyoming big sagebrush community. Beneficial impacts would range from negligible to major, depending on future fire frequency and size.

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

The No Action Alternative does not give direction for increasing woody vegetation in 303(d) streams that are not meeting standards for water temperature. However, future changes in land

management would occur that reduce water temperatures, such as by increasing woody vegetation, once TMDLs are set. Livestock management changes and planting are the two main methods used to increase riparian woody vegetation. Under the No Action Alternative, livestock management changes could continue to exclude summer grazing (July, August, and September) in the livestock allotments that were identified as not meeting riparian management objectives. Based on past management, woody vegetation planting could also occur within some of the areas excluded from livestock grazing. Although these changes would continue to increase woody vegetation, resulting in minor to moderate, beneficial effects to rangeland health standards for watershed function/riparian, ongoing PFC monitoring indicates that the level of vegetation increase in some streams would not be sufficient to improve rangeland health to a desirable level. In these situations, restricting fall livestock use (i.e. setting restrictive stubble height targets, eliminating fall grazing, or increasing fall grazing deferment) would be required to improve riparian conditions. The No Action Alternative has a minor to high probability of eventually changing grazing management within these riparian areas through permit renewal NEPA, resulting in major beneficial effects. The reason for the wide range in probability of achieving major beneficial effects is that there would be no guidance for livestock management when riparian stubble height is exceeded. Specifically, if stubble height were to be exceeded in 1 or more years, it could erase all improvements to woody vegetation, especially when riparian trees are smaller than 5 feet. As a result, it is unclear if or under what circumstances the No Action Alternative would require livestock rest if stubble heights are exceeded. Therefore, the beneficial effects would not be realized until stubble height targets are set, which would likely be in at least 10-15 years.

Seeding and Planting Non-Native Annual Grass Communities

Under the No Action Alternative, non-native annual grass stands within crucial deer winter ranges would be seeded with late succession species and, in limited cases, non-native grasses. Past reseeding projects using late succession species have generally failed, which is consistent with other research findings (Campbell and Swain 1973; Allen 1995). Establishment of native species is particularly difficult if the seed mixture is made up of late succession species (e.g., bluebunch wheatgrass and Idaho Fescue; Johns 1998). While seeding would be beneficial if successful, it would be likely to be unsuccessful under the No Action Alternative, and, therefore, beneficial impacts would be undetectable or negligible. Indirect adverse impacts would occur if unsuccessful seeding resulted in the spread of non-native annual grasses into adjacent native grasslands in the long term, which could result in moderate adverse effects including reduced habitat connectivity. Specifically, past seeding projects that used native late seral species have resulted in higher non-native annual grass production than post-treatment levels, which has in turn increased fuel loads (residual grass litter). If a wildfire were to burn within these treated areas, fire severities would probably be high enough to convert adjacent native sagebrush stands into non-native annuals.

Seeding and Planting Native Sagebrush Communities

Under the No Action Alternative, native stands of sagebrush within critical winter range could be planted with native shrub, grass, and forbs to improve plant diversity and composition, with a focus on planting deer winter forage species (bitterbrush) within mountain and Wyoming big sagebrush stands. The acreage treated would range between 500 to 1,000 acres, which would result in minor to moderate, beneficial impacts.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Under the No Action Alternative, livestock rest would occur for 2 to 5 years after fire and 3-5 years after manipulation of vegetation regardless of size. A recent study indicates that regulating the season when grazing occurs in native sagebrush communities after a fire is as effective as resting livestock grazing for an extended period of time (Bates et al. 2009). Specifically, they found that grazing could occur as early as one growing season (during late summer to fall season) after a fire. Therefore, the current management of requiring 2-5 years of rest in many situations would be deemed as more than adequate to maintain bare ground, soil surface litter cover, and herbaceous cover, density, and yield at pre burn levels. Therefore, beneficial impacts on rangeland health would continue to be considered long-term and major.

Livestock rest would also be applied to non-native annual grass pastures. Resting a non-native annual pasture for 2 to 5 years would not increase native plant diversity (Emmerich et al. 1993); however, it would increase the amount of fuel and set the conditions for extreme fire behavior, which could convert adjacent native sagebrush into a non-native annual grass community. Therefore, resting a non-native annual grass community has the potential to have negligible to major, adverse effects to rangeland health and would be dependent on future fire frequency and size.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Rest-rotation and deferred grazing systems would be authorized in non-native annual grass communities under the No Action Alternative, which could adversely affect native vegetation resources by increasing fuel loading, fire size, fire severity, and fire frequencies above the level that native plant communities can tolerate (Emmerich et al. 1993). Specifically, resting or deferring livestock use to summer would increase non-native grass litter, causing higher fire severities, which would be high enough to kill the remnant native grass species within the stand and initiate a downward trend (Bunting et al. 1987). The higher amount of litter could also create larger fires that burn adjacent native Wyoming big sagebrush stands, reducing sagebrush cover, clearing the way for an expansion of non-native grass communities, and potentially changing the native sagebrush stand to a non-native annual grass stand. Adverse impacts would be long-term, while the magnitude of the effect has the potential to be negligible to major, depending on future fire frequency and size.

Impacts from Invasive Plants and Noxious Weeds*Early Detection and Rapid Response (EDRR)*

While the current Baker RMP (BLM 1989) gives no direction for new invasive and noxious weed species and the prevention of existing weeds spreading into new areas, current policy is to treat newly found sites and species of invasive and noxious weeds with EDRR. This policy would be followed under the No Action Alternative and would increase the likelihood of detecting noxious weed infestations when they first arrive in a given area, while their populations are still localized and small, and then rapidly beginning the control of these species. These efforts would greatly increase the likelihood that new invasions would be addressed successfully and new weeds would be prevented from becoming established and widespread in a given area. Healthy rangelands typically have from zero to trace (0-2 percent) relative cover of noxious weeds. Therefore, any program that increases the effectiveness of noxious weed control has the potential to have moderate to major, beneficial impacts to rangeland health.

Intensive Restoration of Treated Weed Sites

After weed treatments, the No Action Alternative does not provide direction to follow up with vegetation restoration, such as seeding competitive desirable plants on sites where the desirable plant community is not likely to return after biological, chemical, or mechanical treatment. This would result in a low probability of a successful reduction in weed density and/or vegetative cover in areas that do not have an adequate desirable species seed source. Therefore, the No Action Alternative would continue to be ineffective in controlling weeds in areas that do not have a sufficient desirable plant seed source, resulting in minor to moderate, adverse impact to rangeland health.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas (WMAs)*

The No Action Alternative does not give direction for road densities within priority WMAs (i.e. sage-grouse lek sites or big game winter ranges). Since most of these wildlife areas involve Wyoming big sagebrush communities, impacts would be the same as identified above under Impacts to Vegetative Communities: Road Densities in Wyoming Big Sagebrush.

Decommissioning Roads that are Causing Wildlife Resource Damage

The No Action Alternative does not give direction for decommissioning roads that are causing wildlife resource damage. Since most of the roads that are causing such damage are probably in riparian areas or wildlife wintering areas, the latter being primarily located in the Wyoming big sagebrush communities, the effect would be the same as those identified above under Impacts from Water Resources: Decommissioning or Improving Roads to Reduce Sediment and Impacts from Vegetation: Road Densities in Wyoming Big Sagebrush.

Full Fire Suppression with in Winter Range for Big Game

Most of the winter range for big game animals is within the Wyoming big sagebrush community, which is susceptible to conversion to non-native annual grass through fire frequencies and severities above the historic levels. Such a conversion would result in major, adverse effects on rangeland health standards. The potential for this conversion in winter range for big game animals could be reduced by applying full fire suppression in the affected area, which would not be proposed under the No Action Alternative. As a result, the potential for major adverse impacts from conversion would continue.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Leks for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Most of the sage-grouse leks in the Decision Area are within Wyoming big sagebrush or non-native perennial grass communities. As stated earlier, Wyoming big sagebrush communities are susceptible to conversion to non-native annual grass communities. Development of wind energy projects, ground-level structures, MET towers, and power transmission lines disturb soils and vegetation to a degree that facilitates the spread of noxious and invasive species. Specifically, access roads associated with wind energy, transmission lines, and ground structures can act as weed corridors spreading noxious or invasive weeds to native stands of Wyoming big sagebrush, resulting in adverse effects to rangeland health. In addition, the disturbed area around wind development can also promote noxious weed establishment. The intensity of impacts to rangeland health would be dependent on the amount of development within Wyoming big sagebrush communities, would range from minor to major, and would be long lasting. The No Action Alternative does not give direction for buffers around sage-grouse leks, which would allow the potential for developments in such areas, leading to the adverse effects mentioned above.

Since non-native perennial grass communities have a higher level of resistance to the spread of noxious and invasive weeds, development within these communities would have a negligible effect to rangeland health. However, all developments, regardless of vegetation type, would result in long-term vegetation removal and soil compaction within the disturbed area.

Vegetation Treatment after Wildfires within Sage-grouse Habitat

While the 1989 Baker RMP does not give direction for vegetation treatments after wildfire within sage-grouse habitat, the No Action Alternative would follow the current Emergency Site Rehabilitation policy, which assesses the need of restorative treatment for fires larger than 40 acres. This does not assess fires in sage-grouse habitat that are less than 40 acres for potential restoration projects. Since rangeland health assessments are conducted at the allotment or watershed scale, the adverse effects on the vegetation resource would be negligible.

Impacts from Fire and Fuels Management*Management of Fuel Conditions outside the Wildland-Urban Interface*

The No Action Alternative does not give specific direction for fire using minimum impact suppression tactics (MIST). However, management currently restricts bulldozer use in habitats of threatened, endangered or sensitive species and areas where cultural resources would be damaged. This management would be expected to continue in the future. Bulldozers and other heavy equipment would be authorized within Wyoming big sagebrush stands which could facilitate the spread of noxious and invasive weeds. Research indicates that in most situations, disturbing the ground in a Wyoming big sagebrush stand would have adverse effects, whereas burning may have either beneficial or adverse effects, depending upon fire severities and resource objectives (Bunting et al. 2007; Bates et al. 2009). The No Action Alternative would not take into consideration a low severity fire burn through a native Wyoming big sagebrush stand, which would have a low to moderate probability of converting the burned area to non-native annual grass compared to the high probability of non-native annual grass invading bulldozer created fire-lines (Mafla 2008). The magnitude of adverse effects caused by the use of heavy equipment in a native Wyoming big sagebrush stand would depend upon the acreage of soil disturbance and, in general, would range from negligible to minor.

The No Action does not give direction for appropriate sites where temporary wildfire suppression support facilities could be constructed. Therefore, these temporary sites could continue to be constructed within native Wyoming big sagebrush stands. Construction of temporary facilities could result in ground disturbance and facilitate the spread of weeds within the Wyoming big sagebrush community resulting in a high to moderate probability of long-term, negligible, adverse effects to upland rangeland health.

Impacts from Livestock Grazing*Areas where Livestock Grazing is not Authorized*

The current Baker RMP (BLM 1989) did not authorize livestock grazing within the South Fork Walla Walla or Hunt Mountain ACECs and portions of the Oregon Trail, Joseph Creek, Grande Ronde, and Keating ACECs. The No Action Alternative would continue to authorize grazing in the Sawmill Creek portion of the Keating ACEC.

South Fork Walla Walla ACEC: Livestock grazing would continue to be excluded from the ACEC to protect fisheries, wildlife, and riparian habitat, which would have a minor beneficial effect for the watershed function/riparian rangeland health standard by increasing wood vegetation and reducing stream bank disturbance.

Hunt Mountain ACEC: Sheep grazing would continue to be excluded from the ACEC to protect mountain goats, big game animals, and sensitive plant species. Since Hunt Mountain met vegetation objectives identified in the current Baker RMP (BLM 1989) at the time of ACEC

designation, improvement in vegetation condition was not identified as a reason for designation. Hunt Mountain continues to meet all rangeland health standards. Therefore, livestock exclusion would continue to have no discernable effects on vegetation resources in the ACEC under the No Action Alternative.

Oregon Trail ACEC: Livestock grazing would continue to be excluded on Echo Meadows and Flagstaff Hill to preserve unique historical resources and visual qualities of such sites, including the protection of the wagon trail ruts and the visual quantities of an un-grazed landscape. However, improvement in vegetation condition was not identified as a reason to designate the site as an ACEC. In fact, at the time of ACEC designation, Flagstaff Hill met vegetation objectives identified in the current Baker RMP (BLM 1989). Conversely, Echo Meadows has been converted to a non-native annual grass stand. Although a rangeland health assessment has not been conducted since livestock grazing no longer occurs within the ACEC, professional observation from Mitch BLM range staff indicated that both sites are in similar conditions as identified by the Ironside EIS (Thomas 2010; John Rademacher 2010). Therefore, livestock exclusion would continue to have no discernable effects on vegetation resources under the No Action Alternative.

Joseph Creek ACEC: Livestock grazing would continue to be excluded from the ACEC to protect natural riparian plant communities. Prior to livestock exclusion, riparian areas accessible to livestock grazing within the ACEC boundaries were not meeting riparian objectives. Because developing a grazing system to improve the riparian objectives was not feasible due to the topography and limited livestock watering sites, excluding livestock grazing was the only feasible alternative to improve the natural riparian plant communities. Livestock grazing in the ACEC has been excluded for the last 22 years. Although a rangeland health assessment has not been conducted since livestock grazing no longer occurs within the ACECs, it is assumed that the riparian rangeland health standard would be met. Specifically, the BLM indicates that excluding or proper livestock grazing for 15-20 should make significant improvement towards the riparian rangeland health standard (BLM 2006). Since livestock grazing is not conducive to meeting riparian health due to topography and limited watering sites, continued livestock exclusion would continue to have minor, beneficial, long-term effects.

Grande Ronde ACEC: Livestock grazing would continue to be excluded in riparian exclosures within the ACEC. In addition, newly acquired lands would remain closed to livestock grazing until site-specific NEPA is completed to determine if livestock grazing would be compatible with sensitive fish, riparian, and wildlife management. If livestock grazing were authorized within the newly acquired lands, riparian stubble height target would be more restrictive than previous private land management, which would have minor beneficial impacts on rangeland health due to the small acreage of acquired lands within the Grande Ronde ACEC.

Keating ACEC: Livestock grazing would continue to be excluded within the Balm Creek and Clover Creek Research Natural Area (RNA) portions of the Keating ACEC. Livestock grazing was excluded from Balm Creek in order to protect the regeneration of woody vegetation.

Currently, the riparian area is lined with multiple age classes of aspen and willow trees that stabilize the stream banks and act as a fence, limiting the sites where livestock could water. Therefore, excluding livestock grazing in the Balm Creek RNA would have a negligible, beneficial effect on rangeland health. Clover Creek RNA is a narrow canyon where livestock congregated prior to the construction of a riparian fence. Clover Creek RNA has not had enough woody vegetation growth to inhibit livestock grazing therefore continuing to exclude livestock grazing would result in beneficial effects, although these would be negligible to minor, since the riparian fence is less than 20 acres in length. Livestock grazing would be authorized in the remaining areas within the Keating ACEC.

Impacts from ACECs

Livestock AUMs Authorized

The No Action Alternative would continue to authorize approximately 55,000 AUMs on 374 grazing allotments/lease areas unless site-specific NEPA identifies a need for a reduction. Such grazing levels would greatly affect rangeland health standard for watershed function/uplands. Current riparian monitoring shows that 117 miles of riparian area within the Decision Area are not meeting watershed function/riparian. Some of these riparian areas could improve without reductions in AUMs by restricting season of grazing and management designed to distribute livestock out of the riparian areas; however, not all grazing allotments/leases would improve with this type of livestock management (BLM 2006). In most instances a reduction in allowable grazing days would be authorized within a specific pasture or allotment would be required to improve rangeland health/riparian. These reductions in days of allowed grazing would likely require a reduction in AUMs. Therefore, continuing to authorize 55,000 AUMs could have moderate to major, adverse effects to watershed function/riparian.

Reducing AUMs under the No Action Alternative based on monitoring and assessments would have a negligible effect on rangeland health standards for upland rangeland health standards. Specifically, Brewer et al. (2007) found that timing of grazing has a larger effect on plant vigor and health than the number of AUMs or utilization. Reducing utilization or AUMs would thus not necessarily improve ecological processes and watershed function/uplands.

Lands Acquired Since 1989

All grazeable land acquired since 1989 would be considered for authorization upon receipt of an application. An analysis would be conducted to determine if livestock grazing could occur that was consistent with resource objectives. If livestock grazing were not consistent with resource objectives, a grazing permit would not be issued. Grazing on newly acquired lands under the No Action Alternative would therefore have no discernable effect on rangeland health.

Temporary Changes in Grazing Use Dates

Temporary changes in grazing use dates would not be allowed under the No Action Alternative, which means that the dates identified on the grazing permit/lease or allotment management plan (AMP) would not be flexible. In order to adhere to the best available science, grazing systems need to be developed based on plant growth stage. Specifically, grazing during the critical growth stage (boot to soft dough) needs to be regulated for utilization level and number of years in a row that grazing occurs (Brewer et al. 2007; Ganskopp 1988; Ganskopp 1998; Halstead et al. 2002; Frost and Smith 1994). The boot stage grazing can vary up to two weeks depending on growing conditions. During hot spring seasons, the boot growth stage is likely to occur earlier than during cool springs. Therefore, flexibility regarding livestock on dates would allow grazing to be tailored based upon both the fall upland green-up and the temperature, which can reduce the grazing pressure on riparian areas. If grazing is allowed to occur before the fall green-up, or temperatures are above average, livestock grazing would likely concentrate in the riparian areas and may result in higher use of both woody and herbaceous vegetation. Therefore, the No Action Alternative would not be able to tailor grazing systems to plant growth stage or fall green-up, which would be expected to have a minor to moderate, adverse effect to upland rangeland health standards.

Improving Rangeland Health

Pastures and/or allotments not meeting rangeland health standards would be improved under the No Action Alternative through adjustments to season of use, level of utilization, and/or livestock number and distribution; however, there would be no direction regarding when or how long pasture/allotments should be rested if livestock management changes are not resulting in a desirable rangeland health rating. The No Action Alternative would thus continue to make slow improvements in rangeland health through a trial and error approach. This approach has been used for the last 21 years resulting in negligible to minor improvements to watershed function/riparian and moderate improvement to upland rangeland health standards within the Decision Area. In the past 21 years the primary method of improving riparian health was adjusting the season. However, current studies indicate that setting minimum stubble height, along with season of use, is needed to improve rangeland health (Clary and Lininger 2000 and e-mail from Lininger to Rademacher 2010). Stubble heights under the No Action Alternative would be set one GU at a time. Currently, only 11 of the 14 GUs have stubble heights set or proposed. Of the 11 GUs, one has improved to a level where riparian rangeland health standards are met (Grande Ronde River GU), but not enough time has passed to determine if the riparian stubble height/utilization standards are effective in the other 10 GUs. For the remaining 3 GUs that account for 59 percent of the land base in the Decision Area, it should take an additional 5-10 years to set stubble height standards, and an additional 5-10 years for these changes to make significant movement towards meeting rangeland health standards (BLM 2006). Therefore, it is assumed that additional moderate to major, beneficial effects would take 10- 20 years to be realized. On the other hand, short-term, beneficial effects would be negligible to minor.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Because the current Baker RMP (BLM 1989) did not give direction on grazing livestock exclosures, no authorizations to graze exclosures have occurred. Currently, two livestock exclosures (Long Hollow and Soda Lake) are large enough to support livestock grazing. Both exclosures have improved to a desirable riparian condition. A grazing system that follows Clary and Lininger (2000) and Brewer et al. (2007) in terms of riparian stubble height and upland grass utilization could be developed to maintain a desirable rangeland health within these two exclosures. If such a system were to be followed, or if the exclosures continued to be ungrazed, the exclosures would result in a minor, beneficial effect to meeting rangeland health standards for watershed function/riparian.

Fall Grazing

Fall grazing would not affect upland rangeland health standards under the No Action Alternative since upland utilization would be set at 50 percent and grasses would have set seed and no longer be in a critical growth stage (Brewer et al. 2007). On the other hand, fall grazing can affect rangeland health standards for watershed function/riparian by excessive browse utilization on riparian woody vegetation, which does not leave enough grass to protect stream banks from spring flows. While setting riparian grass stubble heights could improve rangeland health similarly to excluding fall and regulating summer grazing (Clary 1999 and BLM 2006), the No Action Alternative would not set riparian grass stubble height for all streams until grazing permit renewal NEPA is completed, which may take up to 5 years. Rangeland health standard for watershed function/riparian would thus not improve in fall-grazed pastures until stubble heights are set, which would result in a continued short-term, minor to moderate, adverse impacts on watershed function/riparian; however, minor to moderate, beneficial effects would be realized in the long term.

Impacts from Recreation and Travel and Transportation*Travel off Road*

Under the No Action Alternative, 287,611 acres (67 percent of the Decision Area) would remain designated as open, which allows recreationists full access to public lands regardless of whether a road exists. This alternative would include the Virtue Flats play area. The number and length of roads and other ground disturbances created by OHVs within the Decision Area would increase over time and would be likely to increase the spread of noxious weeds since vehicles and roads are conduits for the spread of noxious and invasive plant species (Larson 2003). Off-highway vehicle use is expected to increase within the life of this RMP, along with non-system roads created by OHV use, which would allow the establishment of noxious weeds in new areas. In general, the Wyoming big sagebrush vegetation community would experience the greatest impacts since it is found on gentle slopes and low elevation areas, which are easily navigated by OHVs, and is very susceptible to noxious weed establishment and spread. Therefore, the

combined effect of maintaining the current vehicle travel designations would have moderate to major, adverse impacts to rangeland health.

Impacts from Lands and Reality

ROWs

Under the No Action Alternative, WSR river segments classified as wild would be designated as ROW exclusion areas, while WSAs, ACECs, and WSR river segments classified as scenic and recreational would be designated as avoidance areas. Most of these areas are within the mountain big sagebrush community, which is the most resistant sagebrush community to the conversion to a non-native annual grass community within the Decision Area (Bunting et al. 1987). Therefore, the beneficial effect of retaining the ROW exclusion and avoidance areas to rangeland health under the No Action Alternative would be negligible to minor.

Utility/Travel and Transportation Corridors

The No Action Alternative would result in the designation of all utility/travel and transportation corridors identified by the Western Regional Corridor Study and the I-84 energy corridor identified by the energy corridor programmatic EIS (BLM 2009). The utility/travel and transportation corridors identified in the Western Regional Corridor Study are currently occupied, so designation of these corridors should not cause any additional adverse impacts to rangeland health. Energy development would be allowed within a 3,500 foot buffer along the freeway in the I-84 energy corridor. The vegetation within this corridor is primarily mountain big sagebrush, which is more resistant than any other sagebrush vegetative community to converting to a non-native annual grass community within the Decision Area (Bunting et al. 1987). Because non-native annual grasses and other noxious weeds would be confined within 100 feet from the transmission lines or pipelines, the adverse effect to vegetation would be dependent on the number of developments within the corridor, and can range from minor to moderate.

Impacts from ACECs

Under the No Action Alternative, management of all the existing ACECs and RNAs would be consistent with improving or maintaining a desirable rangeland health condition, with the exception of the Sawmill Creek RNA. The current level of livestock use within the riparian area of this specific RNA has not resulted in a desirable rangeland health rating for watershed function/riparian for approximately one half of a mile of Sawmill Creek. Although short-term impacts to rangeland health within the RNA would continue to be substantial, overall impacts would be negligible due to the small area affected. In the moderate-term, however, impacts would be negligible and beneficial due to changes to livestock grazing systems, which would occur once grazing permit renewal NEPA is completed.

Impacts Common to all Action Alternatives**Impacts from Water Resources*****Decommissioning or Improving Roads in Riparian Conservation Areas (RCA)***

Under all the action alternatives, roads that adversely affect 303(d) streams within RMAs would be decommissioned or improved to reduce sediment input, which would eliminate impacts identified under the No Action Alternative. Decommissioning or improving roads along the 32 miles of riparian areas not meeting rangeland health standards would reduce the intensities of high flows, resulting in a lower probability of stream down-cutting and uprooting of riparian wood vegetation (Switalski et al. 2004). Overall impacts on rangeland health standard for watershed function/riparian along these 32 miles of riparian areas would be beneficial and moderate.

Alternative 1**Impacts from Soil Resources**

Unlike the No Action Alternative, Alternative 1 would improve soil resources on the pasture and allotment scale. Therefore, stands of non-native annual grasses would be treated to improve soil resources which would result in minor improvements to upland rangeland health condition.

Since the vegetation management focus for Alternative 1 would be to improve habitat for sage obligate species, the use of sagebrush reduction treatments would be expected to be less than under the No Action Alternative. Therefore, the main tool that would be used to improve soil resources would be changes to livestock managements. These changes would include everything identified in the No Action Alternative, plus additional management actions to promote biotic soil crust development which include reducing targeted utilization to light (21-40 percent) and restricting grazing during the wet (early spring) and dry seasons (summer and early fall). These additional management actions would be applied in areas where changes to livestock grazing identified in the No Action Alternative are not improving soil resources and soil pH is between 6.5 and 7.2 (Ponzetti and McCune 2001). The overall effects to upland rangeland health standards from soil resources would be beneficial, long-term, and moderate to major since 35,202 acres or approximately 50 percent of native sagebrush stands currently not meeting upland rangeland health has soil pH adequate to produce high biotic crust ground cover.

Impacts from Vegetation***Management of Upland Grass and Shrub Vegetation***

Compared to the No Action Alternative, which does not have a management focus for vegetation resources, the management focus under Alternative 1 would be to enhance sagebrush obligate species habitat. As a result, sagebrush cover would range from Class 2 (1-5 percent) to Class 5

(greater than 25 percent) in mountain and Wyoming big sagebrush communities, with most of the stands within the Decision Area being in classes 3 and 4 (15 to 25 percent). Alternative 1 would also focus on increasing or maintaining the current sagebrush canopy cover, which would result in lower grass production and may result in the continuation of moderate to major, adverse effects to rangeland health conditions. To mitigate these adverse effects, changes in livestock grazing would be more restrictive than under the No Action Alternative. These restrictions and the effect to upland rangeland health are described in detail in the Impacts from Soil Resources section. However, even with the more intensive changes to livestock management, the indicator annual above ground production would likely be lower than the range documented in the NRCS ecological site description, which is used in part to determine upland rangeland health.

Some researchers question the usefulness of the NRCS annual production estimates, especially within the Wyoming big sagebrush communities (Vale 1975). They contend the grass production estimates are higher than the level documented in early Oregon Trail journals. Based on those findings, the reduced annual above ground grass production caused by managing for higher sagebrush cover should be within the natural range in variability and would be considered meeting annual production estimates, which are an element of rangeland health, as opposed to the current view that a pasture with a majority of the area in a class 5 sagebrush canopy cover has a high probability of not meeting the annual production estimates element of upland rangeland health.

Upland Utilization Target

Unlike the No Action Alternative, setting the utilization target for upland forage would consider grazing systems, key plant growth stage, wildlife habitat needs, and biotic crusts, which would aid in improving rangeland health standard ratings within the Decision Area. Using current research (Brewer et al. 2007; Ganskopp 1998; France et al. 2008; BLM 2002; Gregg et al. 1994) to set upland native grass utilization would promote desirable forage production and grass vigor. Due to wildlife habitats and biotic crusts, grass utilization levels in many instances would be lower than the maximum recommended by Brewer et al. (2007). Such vegetation management under Alternative 1 would not only stop rangeland health declines identified under the No Action Alternative, but also aid in reversing the adverse effects currently being experienced on rangelands in the Decision Area and would result in moderate to major, beneficial impacts in terms of achieving upland rangeland health standards. This improvement in rangeland health would be expected to occur within 5-10 years, whereas the No Action Alternative has a moderate to high probability of taking up to 20 years to obtain the same level of improvement. Changing livestock grazing alone, however, would not improve rangeland health in every pasture/allotment to a desirable condition. In some instances, sagebrush canopy reductions would be the only tool available with which to make such improvements (Courtois et al. 2004; West et al. 1984). However, under Alternative 1, these areas would be viewed as being within the natural range in variability and in most cases would not be treated.

Riparian/wetland Utilization Target

Unlike the No Action Alternative, Alternative 1 would set a tentative stubble height immediately based on Clary and Lininger's (2000) findings. Setting these stubble height standards would have beneficial effect on rangeland health by leaving enough residual matter to buffer high flows, promote wood vegetation, and maintain stable stream banks. Immediately setting stubble height targets would improve riparian areas that are not meeting rangeland health standards 5-10 years faster than under the No Action Alternative, resulting in major, short- to moderate-term, beneficial impacts. Stubble height would be set at 6 to 8 inches for low-gradient stream channels with silt or sand substrate, which are thought to be sensitive to livestock (e.g., Rosgen channel types B5, B6, C5, C6, F5, and F6) and 3 to 4 inches for all other streams. Stubble heights set in biological opinions would retain stubble height regardless of sensitivity to livestock grazing. There may be some limited instances where the 3-4 inch stubble height would be applied to streams that require a 6-8 inch stubble height. In these situations, riparian areas would not fully improve until site-specific monitoring identified an appropriate stubble height; however, most riparian areas would see improvement with a 3 to 4-inch stubble height (Clary and Lininger 2000). Due to the assumed low mileage of streams with riparian areas needing a higher stubble height target and the estimated time required to set site-specific targets, adverse effects to these riparian areas would be minor in the short term, but negligible in the long term.

While some riparian/wetlands areas require less than 3 to 4 inches of stubble height to meet rangeland health for watershed function/riparian, having a higher stubble height target than the minimum needed would have no additional beneficial impacts to watershed function/riparian.

Riparian stubble heights would only apply to streams that flow for at least a quarter-mile across public lands. Geographic Information System (GIS) analysis documented 9 livestock grazing pastures with 4 total miles of stream that meet the no stubble-height target criteria in the Decision Area. On the other hand, there are 113 miles of riparian area that would be subject to the setting of stubble height target and, as a result, would improve to a desirable rangeland health condition. In comparison, the No Action Alternative would eventually set riparian stubble heights on every stream within the Decision Area, thus having the potential to improve up to 117 miles of riparian health. Overall, the difference in long-term impacts between the No Action Alternative and Alternative 1 would be negligible, due to the minimal mileage of streams that would not have a stubble height target set under Alternative 1.

Ground Disturbing Projects in Wyoming Big Sagebrush Communities

Under Alternative 1, avoiding or minimizing the loss of native Wyoming big sagebrush stands from BLM-authorized actions would aid in protecting this sensitive plant community. All projects resulting in a loss of native Wyoming big sagebrush would be reclaimed or improved at a ratio of 1:2 (i.e., for every acre of Wyoming big sagebrush taken out of production, two acres of Wyoming big sage brush would be reclaimed or improved). Requiring the restoration of Wyoming big sagebrush would have a minor beneficial effect in reducing habitat fragmentation within this community compared to the No Action Alternative. Areas targeted for reclamation

would have high to moderate site potential and provide the greatest benefits in reducing habitat fragmentation.

Restoration under Alternative 1 would range from reintroducing native shrubs in a non-native grass community to using assisted succession (i.e., initially seeding with non-native perennial grass or early succession native grass then seeding with a late seral native species seed mixture). The probability of a successful seeding would range from moderate to high depending on seeding method, seed mixture, and growing conditions. Beneficial impacts would range from minor to moderate, with the magnitude of effect being dependent on the acreage needing to be reclaimed due to ground disturbing activities. A successful seeding project would take approximately 2 to 5 years for the area to meet rangeland health standards for ecological processes and watershed function/uplands.

Road Densities in Wyoming Big Sagebrush

To increase or maintain the current level of vegetative connectivity, road density in Wyoming big sagebrush communities would be reduced or maintained under Alternative 1, which would eliminate future and reduce current adverse impacts identified under the No Action Alternative. An inventory identifying potential road closures has not been conducted, which makes it difficult to determine the magnitude of beneficial effect to vegetative connectivity. Overall, road removal would have a negligible to moderate, beneficial impact on vegetative connectivity, depending on the number and location of roads removed.

Beneficial impacts from roads acting like firebreaks would be similar to the No Action Alternative as roads that can be used as effective firebreaks would not be removed under Alternative 1.

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

Alternative 1 calls for the increase of woody vegetation in 303(d) streams not meeting the standards for water temperature. As indicated through riparian monitoring, promoting woody vegetation would improve the functionality and condition of many riparian areas, which would result in a desirable rangeland health standard for watershed function/riparian. Grass stubble height targets for riparian areas would be set at the lowest range identified to be appropriate for promoting woody vegetation (Clary and Leininger 2000). While stubble height alone can promote woody riparian vegetation, if the stubble height standard was periodically exceeded, especially during the summer or fall seasons, all improvement in woody vegetation could be lost (BLM 2006). Since livestock grazing would not be excluded during the fall season, grazing targets could be exceeded, which would increase the amount of time required to improve watershed function/riparian standard. Therefore, there would be minor to moderate, beneficial effects in the short term, and a high probability of major, beneficial impacts to rangeland health standard for watershed function/riparian in the long term in comparison to the moderate to high probability identified in the No Action Alternative.

Seeding and Planting Non-Native Annual Grass Communities

Alternative 1 would have a moderate to high probability of successfully restoring a non-native annual grass community compared to the No Action Alternative's low probability of success. Alternative 1 would use an assisted succession technique for re-seeding restoration, which has been shown to be highly successful in restoring historic Wyoming big sagebrush stands and improving habitat connectivity (Johns 1998, Cox and Anderson 2004), in comparison to the slight to low probability from using late succession species. The overall beneficial impacts would be moderate due to only 2,000 acres meeting the criteria for reseeding projects.

Seeding and Planting Native Sagebrush Communities

Impacts would be the same as those described under the No Action Alternative.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Alternative 1 would not allow livestock grazing to return after fire or rehabilitation projects until site-specific resource objectives are achieved, which could include vegetation and litter cover, soil stability, plant density, composition, or plant yield. The amount of rest following a fire would be dependent on fire severity and the presence of noxious or invasive plant seed source. Bates et al. (2009) determined that grazing could occur during the fall, following low severity fires in Wyoming big sagebrush stands that did not have a noxious or invasive weed seed source. Their research showed that the grass cover, plant density, annual yield, percent bare ground, and soil surface litter, which are elements used to determine upland rangeland health, did not differ between livestock rested pastures or pastures grazed one year following a low severity fire. Following this research, livestock grazing could potentially occur after one growing season of deferment under Alternative 1 with no effect to rangeland health. In comparison, pastures burned at fire severities high enough to have a noticeable reduction in grass cover, plant density, percent bare ground, and/or soil surface litter in comparison to adjacent unburned vegetation, may require more than one growing season of rest. In addition, low severity fires that have a noxious or invasive plant seed source may also require more than 1 year of rest. In fact, some situations may require more rest than allowed under the No Action Alternative, which allows a maximum of 5 years. Bates et al. (2009) suggests that these situations would be rare and, in most instances, less than five years of livestock rest would be required following fire. Because Alternative 1 would take all such situations into consideration when determining the duration of livestock rest after a fire, major beneficial impacts would be slightly more extensive when compared to the No Action Alternative. Specifically, in the rare situations where more than 5 years of livestock rest would be needed to meet resource objectives, the No Action Alternative would not authorize the additional year(s) of rest, whereas Alternative 1 would. Since these situations are rare, beneficial effects would be negligible to minor when compared to the No Action Alternative.

In most situations, Alternative 1 would not rest non-native annual grasses stands after fire. As a result, the excessive fuel build-up described under the No Action Alternative, which has the

potential to increase the spread of noxious and invasive weeds, would not occur under Alternative 1. This would reduce any adverse impacts in comparison with the No Action Alternative.

Not requiring livestock rest on pastures that have burned less than 50 acres would have negligible, adverse effects on rangeland health when compared with the No Action Alternative which requires livestock rest for 2-5 years. There would be a slight to moderate probability that the burned area of a native sagebrush community could be converted to a non-native annual grass community, which would have long-term, adverse, negligible impacts. To reduce the probability of conversion, forage utilization would not exceed 50 percent and mid-spring to mid-summer grazing would not be authorized (Bates et al. 2009). These mitigation measures would reduce the probability of conversion to a non-native stand; however, there would still be a slight to moderate probability of conversion when compared to the No Action Alternative.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Only authorizing grazing when the non-native annual grasses are palatable to livestock (early to mid spring, and fall) would reduce fuel-loading in non-native annual grass communities, which would aid in fire suppression efforts, limit the potential size of wildfire, and reduce the probability of converting adjoining native Wyoming big sagebrush stands. There would be moderate to major, long-term, beneficial impacts to future rangeland health. The more intense beneficial impacts would occur in Wyoming big sagebrush communities and the transitional area between mountain big and Wyoming big sagebrush communities, which are susceptible to more frequent fires and higher fire severities than historically occurred in these communities (Bunting et al. 1987). In addition, only authorizing livestock grazing when the non-native annual grasses are palatable would reduce the concentration of livestock use in the riparian areas, which could improve the rangeland health standard for watershed function/riparian on approximately 5 miles of riparian area.

Impact from Invasive Plants and Noxious Weeds

Early Detection and Rapid Response (EDRR)

Impacts would be the same as those described under the No Action Alternative.

Intensive Restoration of Treated Weed Sites

Under Alternative 1, intensive restoration activities would occur on treated weed sites when natural recovery of the desirable plant community would be unlikely. Treatment areas would be rehabilitated to provide competitive desirable plant communities that discourage the establishment of invasive plant populations. Impacts would be beneficial and moderate.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas*

Under Alternative 1, no net increase in road densities would occur in priority WMAs (i.e. sage-grouse lek sites or big game winter ranges) throughout the life of the RMP, and overall road densities may be reduced. Maintaining current road densities or restoring roads in priority WMAs to desirable vegetation would reduce the spread of noxious weeds. Larson (2002) shows that roads are conduits for the spread of noxious weeds and invasive plants. Therefore, road density in Alternative 1 would have a long-term, beneficial, and negligible to moderate effect on rangeland health. However, there would be a moderate probability that reducing road density in the Wyoming big sagebrush community would result in an increased risk of noxious and invasive plant spread into native plant community. Specifically, roads in sagebrush are commonly used as wildfire containment lines which have aided in reducing fire size. The magnitude of adverse effect would be dependent on fire size, frequency, and severity, which would be higher in Alternative 1 when compared to No Action Alternative. This is due to livestock forage utilization having a high probability of being reduced in native plant allotments/pastures currently not meeting rangeland health standards for upland or native, T&E, and locally important species.

Decommissioning Roads that are causing wildlife Resource Damage

Impacts would be the same as those identified above for Impacts from Water Resources: Decommissioning or Improving Roads to Reduce Sediment and Impacts from Wildlife Resources: Roads in Priority Wildlife Management Areas.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Leks for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Under Alternative 1, ground structures for new wind energy developments (i.e. roads and buried power lines), above ground transmission lines, and MET towers would be buffered around sage-grouse leks at 3, 0.5, and 2 miles respectively, most of which are within Wyoming big sagebrush or non-native perennial grass communities. Such buffers would protect 51 percent of native Wyoming big sagebrush and 47 percent of the basin big sagebrush communities from the adverse impacts identified under the No Action Alternative. Beneficial impacts to these areas would range from moderate to major.

Since non-native perennial grass communities have a higher level of resistance to non-native annual grasses and other noxious/invasive weeds spread, establishing buffers within these communities would have no additional or negligible, beneficial effects to rangeland health compared to the No Action Alternative.

Vegetation Treatment after Wildfires within Sage-grouse Habitat

Impacts would be similar to those described under the No Action Alternative, with the exception that the extent of adverse impacts would be reduced due to all fires larger than 10 acres being assessed for restorative vegetative treatments (compared to assessments being limited to fires larger than 40 acres under the No Action Alternative). Beneficial impacts would also be negligible.

Impacts from Fire and Fuels Management*Management of Fuel Conditions outside the Wildland-Urban Interface*

Unlike the No Action Alternative, Alternative 1 promotes the use of MIST for wildfire. These tactics would have the highest benefit within the Wyoming big sagebrush stands. By reducing the amount of ground disturbance within the Wyoming big sagebrush community, these tactics would result in long-term, minor, beneficial impacts to upland rangeland health conditions.

Impacts from Livestock Grazing*Areas where Livestock Grazing is not authorized*

Impacts from excluding livestock grazing within the South Fork Walla Walla and Hunt Mountain ACECs, and portions of the Oregon Trail, Joseph Creek, Grande Ronde, and Keating ACECs would be the same as those identified under the No Action Alternative.

Keating ACEC/RNA: Grazing would be authorized on the Sawmill Creek portion of the Keating ACEC/RNA under Alternative 1, which is unlike the No Action Alternative in that it excludes livestock grazing from the Sawmill Creek portion of the Keating RNA. In order to improve riparian and upland rangeland health, riparian grass stubble height would be set at 6-8 inches and upland utilization would be lowered from 50 percent to 21-40 percent. In addition, late spring to early fall grazing would not be permitted, and mid- to late fall grazing would occur only if fall grass growth was adequate to support livestock nutritional requirements. Finally, livestock grazing would only occur once every three years during the fall and two out of three years during the spring. Restricting grazing to these prescriptions would have a high probability of improving rangeland health to a desirable level (Brewer et al. 2007 and Clary and Lininger 2000). Due to the small size of the ACEC, overall beneficial effects would be minor.

Elk Exclosure on Lookout Mountain: While the 473-acre Elk Exclosure on Lookout Mountain was built to reduce elk and livestock conflicts and improve vegetation condition, the area was never formally closed to livestock grazing, which would occur under Alternative 1. The area within the elk exclosure is currently meeting rangeland health standards and formally closing it would continue to promote a desirable rangeland health condition resulting in a minor, beneficial effect to watershed function/riparian, similar to current management under the No Action

Alternative. It should be noted that similar results would be realized by setting riparian stubble height targets and allowing grazing in the Elk Exclosure (Clary and Lininger 2000).

Sutton Creek Exclosure: While the 1,427-acre Sutton Creek exclosure was built to protect a tree plantation and improve riparian condition, the area was never formally closed to livestock grazing, which would occur under Alternative 1. Excluding grazing would have no effect on the plantation since the trees are large enough that livestock grazing would not cause mortality. Excluding livestock would continue to improve, as well as protect, riparian condition, resulting in minor, beneficial effects to watershed function/riparian.

Snake River Goldenweed RNA/ACEC: Under Alternative 1, the 200-acre Snake River Goldenweed RNA/ACEC within the Huntington livestock allotment would be closed to livestock grazing. Results from the rangeland health assessment conducted for the Huntington allotment show that Powell Creek is not meeting standards for watershed function/riparian. Under Alternative 1, most of Powell Creek would be fenced to exclude livestock, which would result in beneficial effects; however, the magnitude of effect would be negligible since only half of a mile of riparian area would be removed from grazing.

Livestock AUM Authorized

Under Alternative 1, livestock AUMs would be reduced by 11 percent when compared to the No Action Alternative, which takes into account the areas closed to livestock grazing and the reductions in grazing needed to meet riparian stubble height targets. The effects to rangeland health standard for watershed function/riparian would thus be the same as identified in Impacts from Vegetation: Riparian Stubble Height (i.e., beneficial and major).

Lands Acquired Since 1989

Under Alternative 1, lands acquired since 1989 would be excluded from livestock grazing, with the exception of Sutton Creek (80 acres) and Swede's landing areas (225 acres), which would be incorporated into the adjacent allotments. Land acquired near Swede's Landing is dominated by non-native annual grass and would pose a fire hazard if grazing were excluded. The acquired land in Sutton creek is comprised of a vigorous stand of Wyoming big sagebrush. Upland forage utilization and grazing systems identified in Chapter 2 (Vegetative Communities) would maintain the desirable rangeland health rating (Brewer et al. 2007). Therefore, grazing Swede's landing and Sutton Creek would have no discernable effect to the current rangeland health rating, which would be the same as under the No Action Alternative.

All acquired land since 1989 within the Grand Ronde watershed could be grazed on a temporary basis to aid in improving vegetation health. For example, herbicidal control of medusa head is more efficient if livestock are allowed to trample the build-up of grass litter, which would result in a greater surface area of living tissue that would be exposed to the herbicides (pers. comm., M. Porter, October 2008). In addition, livestock grazing could be used to reduce fuel loading on the recently acquired lands to a level where conversion to non-native annual grass community would

be low. The overall effects of authorizing only temporary livestock use to promote rangeland health would be long-term, beneficial, and negligible to minor.

Temporary Changes in Grazing Use Dates

While no flexibility would be allowed for livestock use days under the No Action Alternative, up to 14 days of flexibility would be allowed under Alternative 1. This would allow grazing systems to be tailored to plant growth stages, fall green-up, and air temperatures, which would be more consistent with the best available science to improve upland vegetation vigor and reduce riparian area grazing during times that woody vegetation is highly palatable to livestock (Brewer et al. 2007; Ganskopp 1988; Ganskopp 1989; Halstead et al. 2002; Frost and Smith 1994; BLM 2006). Beneficial impacts to upland rangeland health would range from minor to moderate. Watershed function/riparian would not be affected by such flexibility because plant growth stage is not linked to riparian health but rather to season of use and stubble height (i.e., spring, summer, fall, and winter; BLM 2006; Clary and Lininger 2000).

Improving Rangeland Health

Alternative 1 provides direction on resting pastures if changes to livestock management are not making significant progress towards meeting rangeland health standards. Riparian stubble height and upland utilization targets would be based on the best available science consistent with improving rangeland health. If these changes do not make significant progress towards meeting rangeland health standards after two consecutive monitoring evaluations for vegetative trend, ground cover, or multiple indicators, livestock grazing would be excluded for 5 years. While resting a pasture for 5 years should improve standards for watershed function/riparian (BLM 2006), it may or may not improve standards for upland rangeland health conditions. Specifically, Anderson and Holte (1981) found elements of upland rangeland health started to improve with as little as 5 years of livestock rest. However, Courtois et al. 2004 found that elements of upland rangeland health did not improve after 65 years of livestock rest in 16 livestock allotments. The difference between the two studies is that most of the allotments in Courtois et al. (2004) were thought to have crossed an ecological threshold prior to the passage of the Taylor Grazing Act (1934). Plant communities that cross an ecological threshold require intensive vegetation restoration (re-seeding) in order to restore plant composition, which is an element of upland rangeland health standards. Two allotments in Courtois et al. (2004) did not cross an ecological threshold, however, livestock management within these two allotments were consistent with the livestock grazing recommendations of Brewer et al. (2007). Furthermore, the recommendations Brewer et al. (2007) have been shown to result in statistically similar levels of plant vigor when compared to livestock exclusion. Therefore, changing livestock management to be consistent with the recommendations of Brewer et al. (2007) would limit the need for livestock rest in order to make significant progress towards meeting upland rangeland health standards.

Resting Livestock grazing for 5 years in pastures that have high sagebrush cover would be unlikely to make significant improvements in rangeland health (West et al. 1981). Specifically,

as sagebrush cover increases, grass production decreases and reduces the amount of vegetation litter ground cover in the interspaces between sagebrush plants, which is an element of upland rangeland health. One exception is pastures that have relatively high soil pH (6.6-7.2). Specifically, Ponzetti and McCune (2001) found that biotic crust cover in Oregon is the highest when soil pH is within 6.6-7.2. The amount of biological crust cover that is produced at this pH range could be enough to offset the reduction in litter cover. Using the NRCS soils database, the BLM determined that 30,474 acres not meeting upland rangeland health standards have a pH level between 6.6 and 7.2. The largest impact to biological crust development is livestock grazing (Ponzetti and McCune 2001). Therefore, excluding livestock grazing for 5 years and then modifying livestock grazing (regulating early spring and hot season grazing and/or reducing forage utilization targets) has a moderate to high probability of making significant progress towards meeting upland rangeland health within the 30,474 acres. Therefore, livestock management under Alternative 1 would result in long-term, major, beneficial effects to rangeland health when compared to the No Action Alternative.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Impacts would be the same as those described under the No Action Alternative.

Fall Grazing

Fall grazing is compatible with meeting watershed function/riparian if riparian grass stubble height is set appropriately. Unlike the No Action Alternative, Alternative 1 would immediately set a temporary riparian stubble height based on Clary and Lininger (2000) and make refinements once stream or channel type-specific monitoring is completed (University of Idaho 2004). Refinements may include reducing or increasing stubble height target, setting stream bank alternation, and altering woody browse utilization targets. See the Vegetation Riparian/wetland Utilization Target section for the effect of setting immediate stubble heights.

Impacts from Recreation and Travel and Transportation

Travel off Road

Under Alternative 1, only 4,910 acres would be designated as open, which are located in the already established Virtue Flat OHV Play Area. The remaining 423,119 acres within the Decision Area would be closed to vehicular travel or have vehicles restricted to designated roads and trails. Since vehicles and roads are conduits for the spread of noxious and invasive plant species (Larson 2003), restricting OHV use on 99 percent of the Decision Area would reduce the future spread and establishment of noxious weeds and invasive plants. The moderate to major, adverse impacts described under the No Action Alternative would thus be reduced to minor and would be concentrated in the Virtue Flats OHV Play Area. Due to the limited size of the play area, overall adverse impacts due to the increase in noxious weed and invasive plant spread would be minor. However, there would be a high probability that noxious and invasive plants

would spread into the adjacent Virtue Flat area of critical ecological concern (ACEC), with the increased weed spread to be contained to 50 to 328 feet from the Virtue Flats OHV Play Area boundary (Mafla 2008; Larson 2002). Beneficial impacts to rangeland health in the remaining 99 percent of the Decision Area due to areas closed or restricted to motorized travel, which would thereby reduce the spread of weeds, would range from moderate to major.

Impacts from Lands and Reality

ROWs

Under Alternative 1, WSAs, all WSR corridors, a portion of the Oregon Trail ACEC, and the proposed Virtue Flat ACEC, totaling 71,052 acres, would be designated as exclusion areas for ROWs. In addition, 42,901 would be designated as ROW avoidance areas. Most of the ROW exclusion and avoidance areas proposed are within native Wyoming big sagebrush and mountain big sagebrush communities and, to a lesser degree, within non-native annual and perennial grass communities. No discernable effect would occur from excluding ROWs from non-native annual grass communities, since noxious weeds already occupy these sites. In addition, since non-native perennial grass and mountain big sagebrush communities are generally resistant to being converted by noxious weeds, including annual grasses, the beneficial impacts from avoiding or excluding these communities would be negligible or minor. Excluding ROWs in the Wyoming big sagebrush community would have the greatest beneficial impact since most roads and other areas with ground disturbance within the Wyoming big sagebrush communities are infested with non-native grasses and the community is susceptible to conversion into non-native grasslands. Therefore, reducing soil disturbance by excluding or avoiding ROWs in Wyoming big sagebrush stands would aid in minimizing future expansions of non-native annual grass communities. Beneficial impacts would range from moderate to major.

Utility/Travel and Transportation Corridors

Impacts would be the same as identified under the No Action Alternative.

Impacts from ACECs

Three additional ACECs and one RNA would be designated under Alternative 1 in comparison to the No Action Alternative. Of these, the Virtue Flat Sage-grouse Habitat and Denny Flat ACECs are large enough to have more than a moderate effect on rangeland health. Magpie ACEC and Snake River Goldenweed RNA are small (574 and 235 acres, respectively) and would have minor, beneficial effects to rangeland health.

Virtue Flat Sage-grouse ACEC

Under Alternative 1, the 42,022 acre Virtue Flat Sage-grouse ACEC would be designated, which consists of native perennial grass, non-native perennial grass, Wyoming big sagebrush and non-

native annual grass communities. Alternative 1 would pursue excluding mineral entry and development within the ACEC, which would have negligible impacts to rangeland health within the non-native annual grass stand within this proposed ACEC as this vegetation community has already been converted to a noxious weeds and invasive plant community. Specifically, these sites are currently not meeting rangeland health standards, and mining activities would not add to the adverse impacts above and beyond past adverse effects. In addition, the probability of restoring the non-native annual grass stands within the ACEC would be low due to the poor site potentials. Excluding mining and development in the non-native perennial grass stands would also have a negligible effect on rangeland health since most of the stands within the ACEC have high plant vigor. Furthermore, livestock management would be consistent with Brewer et al. (2007) resulting in a low probability of converting the area into a non-native annual grasses stand. Conversely, excluding mineral entry and development in the native Wyoming big sagebrush stands within the Virtue Flat Sage-grouse ACEC could have minor to moderate, beneficial effects to rangeland health by reducing future ground-disturbing projects within this sensitive plant community.

Denny Flat ACEC

The proposed Denny Flat ACEC would encompass 3,840 acres, with the majority of vegetation being comprised of native mountain big sagebrush and Phase 1 juniper. Excluding mineral entry would be pursued, development would be excluded, and vehicular travel would be restricted to designated roads within the ACEC. The Denny Flat area currently has a noxious weed infestation (white top), which is primarily located along roads, trails, and other disturbed areas. Since the Baker FO is currently not authorized to use herbicides effective in controlling this noxious weed, the only control measure at this time would be to minimize ground disturbances and manage livestock to promote native plant vigor. Therefore, excluding mineral entry, development, and restricting vehicle use to designated roads and trails could have a minor to moderate, beneficial impact to rangeland health by controlling or reducing the spread of noxious weeds.

Magpie ACEC

The proposed Magpie ACEC would encompass 574 acres, with the majority of vegetation being comprised of three-tip sagebrush. Excluding mineral entry would be pursued, avoidance of leasable minerals exploration and development and land use authorizations would be applied, motorized vehicle travel would be limited to designated roads and trails and strategic integrated pest, and weed management would be implemented. Currently, the proposed Magpie ACEC is meeting all five rangeland health standards. Therefore, the above restrictions would reduce the probability of low under the No Action Alternative to slight for this area being converted to non-native annual grass or other invasive plants and noxious weeds, resulting in minor long beneficial effects.

Snake River Goldenweed ACEC/RNA

The proposed Magpie ACEC would encompass 235 acres with the majority of vegetation being comprised of mountain big sagebrush with an understory of bluebunch wheatgrass and Idaho fescue. Livestock grazing would be excluded except if needed to achieve ACEC/RNA objectives. In addition, all land use authorizations, including energy and non energy ROWs, communication site leases, and other permits, would be avoided. Excluding livestock grazing would have no discernable effect on upland rangeland health since current management has resulted in meeting upland rangeland health standards. However, excluding livestock grazing would have an effect on the protection of Snake River Goldenweed (see Special Status Species, Plants). Restricting energy and non energy ROWs, communication site leases, and other permits would reduce the risk of non-native annual grass spreading into this native stand of mountain big sagebrush as compared to the No Action Alternative, which would not restrict these ground-disturbing activities. Therefore, avoiding energy and non-energy ROWs, communication site leases and other permits within this 235 acre ACEC would have minor, long-term, beneficial effects to rangeland health.

Alternative 2

Impacts same as under the No Action Alternative

- Impacts from Soil Resources

Impacts same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds

Impacts from Vegetation

Management of Upland Grass and Shrub Vegetation

The management focus under Alternative 2 would be to increase grass production and reduce hazardous fuels in mountain and Wyoming big sagebrush communities for livestock production, while still providing for sagebrush obligate species habitat. As a result, sagebrush cover in mountain and Wyoming big sagebrush communities would range from Class 1 (0 percent) to Class 5 (greater than 25 percent), with most of the stands within the Decision Area being in Classes 2 and 3 (1-15 percent). Mechanical and prescribed fire would be used to reduce sagebrush canopy cover within the Wyoming big sagebrush community. To reduce the probability of the Wyoming big sagebrush site converting to an annual grass community, prescribed fire would only be used if expected fire severity is not predicted to kill apical meristematic tissue (i.e., the active growing point located at the base of the plant).

Alternative 2 would improve rangeland health by focusing on reducing sagebrush cover and increasing grass production. Grass production has been directly or indirectly identified as one of the main factors affecting rangeland health for native vegetation stands. Alternative 2 would be the most aggressive alternative at treating sagebrush canopy, resulting in major beneficial effects

that would be similar to the No Action Alternative and Alternative 1. The only difference would be that Alternative 2 would provide less shrub cover and higher grass production than both the No Action Alternative and Alternative 1.

Upland Utilization Target

Unlike the No Action Alternative, Alternative 2 would provide adequate deferment during the perennial grass critical growth stage. Upland grass utilization targets under Alternative 2 would be based upon the best available science to maintain or improve native grass vigor, dependent on plant growth stage, which would aid in improving rangeland health standard ratings within the Decision Area. Such actions would take a similar amount of time as Alternative 1 to make significant progress towards meeting rangeland health standards. However, Alternative 2 would leave less residual grass stubble than Alternative 1. The beneficial effects of this alternative would be similar to Alternative 1 (long-term and moderate to major).

Riparian/wetland Utilization Target

Impacts from setting tentative minimum stubble heights in riparian/wetland areas would be similar to what was described under Alternative 1; however, stubble targets would be set lower under Alternative 2. Streams with dry and stable stream banks would initially have a 2-3 inch stubble height target, which is generally adequate to protect the watershed function/riparian of dry and stable streams (Clary and Lininger 2000). There are instances where a 2 to 3-inch stubble height target is not suitable for dry and stable streams; however, at this time the stream reaches requiring a higher stubble height have not been identified. These streams would not improve in condition until monitoring was completed in order to set site-specific stubble height standards. Because an undetermined number of streams miles would be involved, short- to medium-term, adverse effects would be difficult to determine; however, they would likely range between minor to moderate when compared to Alternative 1. Once riparian monitoring was completed in order to determine appropriate stubble heights, and then implemented, these stream reaches would no longer be considered adverse, but would be similar to Alternative 1 (major and beneficial). However, the BLM expects that it would take 10-15 years to collect the riparian data for all dry and stable stream banks within the resource area that are currently not meeting riparian rangeland health standards.

Also differing from Alternative 1 is that stubble height targets set for streams highly vulnerable to livestock-related impacts would be lower under Alternative 2 (3 to 4 inches compared to 6 to 8 inches). Monitoring has not been conducted to identify streams that require a higher stubble height; therefore, determining the level of effect is difficult. Research and observations from past riparian restoration projects have indicated that Rosgen channel types (B5, B6, C5, C6, F5, and F6) reaches may require a 6-8 inch stubble height. A PFC riparian assessment identified 2.3 miles of stream reaches that would potentially benefit from a 6- 8 inch stubble height. Therefore, setting a 3-4 inch stubble height could have long-term, negligible, adverse effects on rangeland health for watershed function/riparian.

Riparian stubble height targets under Alternative 2 would only apply to streams that flow more than 1 mile across public lands. As a result, 86 miles of the 117 streams adversely affected by livestock grazing would be assigned a stubble height target. Therefore, the intensity of beneficial impacts from riparian stubble height targets (i.e., improving riparian areas to a desirable rangeland health condition) would be similar to Alternative 1 (i.e., minor to major), but would be less extensive as it would apply to 30 fewer miles of streams.

Ground Disturbance Projects in Wyoming Big Sagebrush Communities

Impacts would be similar to those discussed under Alternative 1, with the exception that current levels of fragmentation would be maintained but not improved due to reclaiming all projects resulting in a loss of native Wyoming big sagebrush at a ratio of 1:1 (i.e., for every acre of Wyoming big sagebrush taken out of production, one acre of Wyoming big sage brush would be reclaimed or improved). Alternative 2 would thus result in the elimination of adverse impacts identified under the No Action Alternative from the loss of Wyoming big sagebrush habitats due to lack of restoration, which would have negligible overall effects to Rangeland Health.

Road Densities in Wyoming Big Sagebrush

Under Alternative 2, the current road density in native Wyoming big sagebrush stands would be maintained or increased when compared to Alternative 1, which would result in the same impacts as those identified under the No Action Alternative. Specifically, the No Action Alternative and Alternative 2 do not restrict road densities.

Seeding and Planting Non-Native Annual Grass Communities

Unlike the No Action Alternative and Alternative 1, Alternative 2 would use desirable non-native perennial grass or a combination of non-native and native species to restore rangeland health within non-native annual grass communities. Using non-native perennial grass greatly increases the probability of the successful establishment of desirable vegetation when compared to using late succession species under the No Action Alternative (Cox and Anderson 2004). The beneficial effects would be minor due to the small number of acres (1,500 acres) that meet the criteria for reseeding projects, which would be 500 acres less than Alternative 1.

Seeding and Planting Native Sagebrush Communities

Impacts from seeding and planting bitterbrush and other native shrubs, grasses, and forbs would be similar to those discussed under the No Action Alternative (long-term, beneficial, minor to moderate effect), although impacts may be more restricted in scope as planting bitterbrush and other native species would only occur in areas where livestock AUMs would not be affected. Seeding and planting would thus be limited to vacant or closed allotments or areas unsuitable to livestock grazing (e.g., steep slopes or areas further than 1 mile from water).

Resting Livestock Grazing After Fire or Rehabilitation Projects

Impacts would be the same as described under Alternative 1.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas*

Impacts would be the same as described under the No Action Alternative.

Decommissioning Roads that are causing wildlife Resource Damage

Impacts would be the same as those identified above for Impacts from Water Resources: Decommissioning or Improving Roads to Reduce Sediment and Impacts from Wildlife Resources: Roads in Priority Wildlife Management Areas.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Leks for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Under Alternative 2, development would be avoided or excluded on 24 percent of the Wyoming big sagebrush and 25 percent the basin big sagebrush communities as compared to Alternative 2, where 51 and 47 percent respectively, would be avoided or excluded. This would be roughly half the acreage that would be protected under Alternative 1. Therefore, the beneficial effect would be minor to moderate when compared to the No Action Alternative, where development is not restricted for these plant community types.

Vegetation Treatment after Wildfires within Sage-grouse Habitat

Impacts would be the same as described under the No Action Alternative.

Impacts from Fire and Fuels Management

Same as Alternative 1

Impacts from Livestock Grazing

Areas where Livestock Grazing is not authorized

Impacts would be the same as identified under the No Action Alternative due to the same areas not being authorized for grazing, with the exception of Sawmill RNA. The Sawmill RNA would be grazed in the same manner as under Alternative 1, resulting in the same impacts there as identified under Alternative 1.

Livestock AUM Authorized

Under Alternative 2, livestock grazing would be increased by 1 percent when compared to the No Action Alternative. The increase in AUMs would occur in pastures/allotments meeting all rangeland health standards. The increase in AUMs would require grazing systems to be developed with a greater amount of deferment during forage grass critical growth stage to protect upland rangeland health condition when compared to Alternative 1. The great amount of deferment would result in similar effects to rangeland health when compared to Alternative 1, which is supported by recent rangeland studies (Brewer et al. 2007). The main difference between Alternative 1 and Alternative 2 is that Alternative 1 would result in lower grass heights in both upland and riparian communities.

Lands Acquired Since 1989

Grazing would be authorized within all of the lands acquired since 1989. Livestock grazing management would be consistent with the best available science and should result in a desirable rangeland health rating (Brewer 2007, Clary 1999, Clary and Lininger 2000). Beneficial effects to rangeland health would be the same as the No Action and Alternative 1, since no grazing or prescriptive grazing and light to moderate utilization would have essentially the same effect to upland and riparian rangeland health condition.

Temporary Changes in Grazing Use Dates

Impacts would be the same as described under Alternative 1.

Improving rangeland health

Alternative 2 would set the least restrictive riparian stubble height and upland utilization targets, which are consistent with the findings of Brewer et al. (2007) and Clary and Leininger (2000) for improving rangeland health. If riparian stubble height targets are set at the least restrictive levels, there would be a moderate probability that significant progress towards meeting rangeland health standards would not be realized in dry and stable stream banks. This is due to the fact that the BLM does not have an inventory of the streams reaches that could be classified as having dry and stable stream banks. As a result, the BLM would rely on the professional opinion of the resource specialist in identifying areas where a 2-3 inch stubble height would be

appropriate. There would be a moderate to high probability that miss-categorization of stream banks would occur that would delay the obtainment of major beneficial effects to rangeland health. Specifically, the BLM expects that it would take between 5-10 years to verify which stream banks identified warrant the least restrictive stubble height target (2-3 inches). In addition, stream banks where the least restrictive stubble height target was misapplied, it could take an additional 5-10 years to see significant progress towards meeting rangeland health standards, which is supported by BLM (2006). Therefore, major, long-term, beneficial effects to riparian rangeland health could take up to 20 years to manifest, which would be the same as the No Action Alternative. However, short- and moderate-term, beneficial effects would be moderate when compared to the No Action Alternative.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Impacts would be the same as described under the No Action Alternative.

Fall Grazing

Impacts would be the same as described under Alternative 1.

Impacts from Recreation and Travel and Transportation

Travel off Road

Under Alternative 2, 30,355 acres would be open to off road use, which includes the new Denny Flat and Sunday Hill areas, along with the previously established Virtue Flat OHV Play Area. The remaining 423,119 acres within the Decision Area would be closed to vehicular travel or restricted to designated roads and trails. Restricting OHV use on 97 percent of the Decision Area would reduce the future spread and establishment of noxious weeds and invasive plants when compared to the No Action Alternative. Beneficial impacts to rangeland health would be expected to be less than that of Alternative 1, and would range from minor to moderate depending on future OHV demands.

Virtue Flat OHV Play Area: Impacts would be the same as identified under Alternative 1

Denny Flat: While rangeland health assessment shows that the Denny Flat allotment is meeting standards in two of the three pastures, noxious weeds, including white top and non-native annual grasses, are present. The Baker FO is currently not authorized to use herbicides that are capable of controlling white top or non-native annual grasses. Allowing OHV travel in Denny Flat would allow the acreage of noxious weeds to increase to a level where the Denny Flat allotment would no longer meet upland rangeland health standards. Impacts to rangeland health would be adverse and range from minor to moderate.

Sunday Hill: The proposed Sunday Hill OHV Play Area is located within the Mormon Basin livestock grazing allotment. The vegetation in this allotment primarily consists of native mountain big sagebrush and Phase I juniper, with trace amounts of noxious weeds. The noxious weeds, mostly non-native grasses, are located along road edges. As the proposed Sunday Hill OHV area would be expected to result in increased OHV use in the area, noxious weeds would also increase and spread; however, the increase would have only negligible effects to rangeland health since mountain big sagebrush stands are more resilient to conversion to non-native grasses than any other sagebrush community within the Decision Area.

Impacts from Lands and Reality

ROWs

Under Alternative 2, WSAs, all WSR corridors and a portion of the Oregon Trail ACEC, totaling 25,236 acres, would be designated as exclusion areas for ROWs, which would be 45,816 acres less than Alternative 1. In addition, 32,403 would be designated as ROW avoidance areas, which would be 10,498 acres less than Alternative 1. Most of the ROW exclusion and avoidance areas proposed are within native Wyoming big sagebrush and mountain big sagebrush communities and, to a lesser degree, within non-native annual and perennial grass communities. Beneficial effects have a moderate to high probability of being moderate and long-term when compared to the No Action Alternative; however, depending on the amount of development excluded, there would be a slight probability of being major in comparison

Utility/Travel and Transportation Corridors

Impacts would be the similar to those identified under the No Action Alternative, with the exception that increasing the I-84 energy corridor width from 3,500 to 6,000 feet under Alternative 2 would increase the acreage of Wyoming big sagebrush that could be impacted by utility, travel and transportation. The intensity of adverse impacts would range from moderate to major, depending on the location and size of the ground-disturbing projects.

Impacts from ACECs

Impacts would be similar to those identified under the No Action Alternative, with the exception that removing the ACEC designation from Hunt Mountain would have a negligible, adverse effect on rangeland health. Since Hunt Mountain met all objectives for vegetation resources prior to ACEC designated, removing the ACEC designation should not cause any detrimental effects.

Alternative 3

Impacts same as under Alternatives 1

- Impacts from Soil Resources

- Impacts from Invasive Plants and Noxious Weeds

Impacts same as under Alternatives 2

- Impacts from Recreation and Travel and Transportation
- Impacts from ACECs

Impacts from Vegetation

Management of Upland Grass and Shrub Vegetation

Impacts would be the same as identified under Alternative 1.

Upland Utilization Target

Impacts would be the same as described under Alternative 1.

Riparian/wetland Utilization Target

Alternative 3 would set a tentative stubble height of 2-3 inches on riparian areas that have dry and stable stream banks which are the same as Alternative 2. However, unlike Alternative 2, Alternative 3 would set a 6-8 inch stubble height for those that are highly vulnerable to livestock impacts. The BLM expects that setting a 6-8 inch stubble height for those that are highly vulnerable to livestock impacts would make progress towards meeting rangeland health standards upon implementation. However, as documented in Alternative 2, Alternatives 2 and 3 could result in minor to moderate, adverse effects in the short- to moderate-term when compared to Alternative 1. In the same manner as Alternative 2, once riparian monitoring was completed in order to determine appropriate stubbles, then implemented, these reaches of stream would no longer be considered adverse, but would have similar effects to Alternative 1 (major and beneficial). However, the BLM expects that it would take 5-10 years to collect the riparian data for all dry and stable stream banks within the resource areas that are currently not meeting riparian rangeland health standards.

Under Alternative 3, riparian stubble height targets would only apply to streams that flow for more than half of a mile across public lands, which means that 110 miles of creek within the Decision Area would meet the no stubble-height target. This would be roughly three times the area affected compared to Alternative 1, but one-third the area compared to Alternative 2. It would also be likely that these riparian areas would not improve. Beneficial impacts to 110 miles of riparian area that could improve to a desirable rangeland health condition from setting stubble target would be similar to those described under No Action (minor to major), although such impacts would occur on 7 fewer miles.

Ground Disturbance Projects in Wyoming big Sagebrush Communities

Impacts would be the same as described under Alternative 1.

Road Densities in Wyoming Big Sagebrush

Impacts would be the same as described under Alternative 1.

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

Impacts would be similar to those described under No Action Alternative and Alternative 1, with a few exceptions. Alternative 3 proposes the most safeguards to promote woody vegetation within riparian areas, including setting riparian stubble height, excluding fall grazing, and discouraging summer grazing. Alternative 3 would ensure that stubble height standards are not exceeded by excluding or discouraging livestock grazing during the hot season (summer and fall). This would result in a high probability of major beneficial effects in the short term in terms of meeting rangeland health standards for watershed function/riparian. In contrast, the short-term probability of improvement under Alternative 1 would be dependent on how many years the stubble height standard was exceeded during the hot season when woody vegetation is more palatable to livestock grazing. Therefore, there would be a high probability that the No Action Alternative would not make progress toward meeting rangeland health standards in the short term. Conversely, the mid- to long-term probability of improvement for Alternative 1 and Alternative 3 would be the same (high), since both Alternatives 1 and 3 would remove livestock grazing for 5 years in allotments that are not meeting rangeland health standards after two consecutive evaluations, in contrast to the No Action Alternative, which does not give guidance on resting livestock if stubble heights are exceeded. As a result, beneficial effects would range between minor to major under Alternative 3.

Seeding and Planting Non-Native Annual Grass Communities

The beneficial effects would be minor to moderate, due to the small number of acres (1,000 acres) that meet the criteria for reseeding projects, which would be 1000 acres less than Alternative 1 and within the range (500-1000 acres) identified in the No Action Alternative. The magnitude of beneficial effects (minor to moderate) would be the same, due to the relatively small difference in treated acres when the No Action Alternative is compared to Alternative 3.

Seeding and Planting Native Sagebrush Communities

Impacts would be similar to those described under the No Action Alternative (long-term, minor to moderate, beneficial impacts), although the scope may be more limited as seeding and planting would be emphasized in areas accessible for wildlife viewing. The acreage meeting this criterion would be lower than under Alternative 1, but higher than under Alternative 2.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Impacts would be the same as described under Alternative 1.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas*

Impacts would be the same as described under the No Action Alternative.

Decommissioning Roads that are Causing wildlife Resource Damage

Impacts would be the same as identified under Impacts from Water Resources:

Decommissioning or Improving Roads to Reduce Sediment and Impacts from Wildlife: Roads in Priority Wildlife Management Areas.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Lek for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Impacts would be similar to those described under Alternative 1 (beneficial impacts would be long-term and range from moderate to major), except that impacts would be less widespread in the Wyoming big sagebrush community as development would be avoided or excluded on 38 percent of this community under Alternative 3 (13 percent less than under Alternative 1).

Vegetation Treatment after Wildfires within Sage-grouse Habitat

Impacts would be similar to those described under the No Action Alternative, except that the extent of impacts would be reduced as all fires larger than 25 acres (compared to 40 acres) would be assessed for restorative vegetative treatments. Overall impacts would remain negligible.

Impacts from Fire and Fuels Management*Management of Fuel Conditions outside the Wildland Urban-Interface*

Same as Alternative 1

Impacts from Livestock Grazing*Areas where Livestock Grazing is not authorized*

Impacts due to not authorizing livestock grazing in certain areas would be the same as identified under Alternative 1 due to the same areas that would be closed. In addition, Alternative 3 would result in closing Ruckles Creek (Friday Mine Pasture), Mormon Basin (Mormon Basin Pasture), and Sawmill and Lower Sawmill allotments to grazing. The impacts from these additional closures are discussed below.

Ruckles Creek Allotment (Friday Mine Pasture)

The Friday Mine Pasture would be closed to reduce OHV use and livestock grazing conflicts. While a rangeland health assessment has not been conducted for the allotment, trend monitoring and field observations suggest that the Friday Mine Pasture should meet all standards. The pasture is primarily comprised of Wyoming big sagebrush stand with non-native annual grass stands along roads and trails. Excluding livestock grazing would increase the amount of fuel to a level that could result in high-severity fires that could convert the native Wyoming big sagebrush stand into a non-native annual grass community. The probability of this occurring would be relatively high due to a prolific non-native annual grass seed source along many or most of the roads and trails leading to and cutting through the allotment. The potential adverse effect would be minor and would be long-term.

Mormon Basin Allotment (Mormon Basin pasture)

Mormon Basin pasture would be closed to grazing to reduce conflict with recreation. Mormon Basin allotment is primarily comprised of a native mountain big sagebrush community that is currently meeting all rangeland health standards. Excluding livestock grazing would thus not increase the probability of converting to a non-native annual grass community, since mountain big sage brush communities are less sensitive to burning than Wyoming big sagebrush communities (Bunting et al. 1987). As a result, excluding livestock grazing would probably not result in the deterioration of current upland rangeland health standards.

Sawmill and Lower Sawmill Allotments

Sawmill and Lower Sawmill allotments would be closed to livestock grazing under Alternative 3. Both allotments did not meet standards for watershed function/riparian, primarily due to livestock grazing. Removing grazing would thus improve riparian conditions on approximately 1.5 miles of riparian area, resulting in a negligible to minor, beneficial effect.

Livestock AUM Authorized

Alternative 3 would reduce grazing AUMs by 25 percent when compared to the No Action Alternative, which takes into account the areas closed to livestock grazing, reductions in grazing needed to meet riparian stubble height targets, and eliminating fall grazing. Therefore, the beneficial effects as a result of the a 25 percent reduction in AUMs would be the culmination of

effects identified in Riparian/wetland Utilization Target Areas where Livestock Grazing is not authorized and Fall Grazing which would be major.

Lands Acquired Since 1989

Impacts would be the same as described under Alternative 1.

Temporary Changes in Grazing Use Dates

Impacts would be the same as described under Alternative 1.

Improving Rangeland Health

Impacts would be the same as described under Alternative 1.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Impacts would be the same as described under the No Action Alternative.

Fall Grazing

Alternative 3 proposes the most safeguards to promote rangeland health standards for watershed function/uplands, including setting riparian stubble height, excluding fall grazing, and discouraging summer grazing. While stubble height alone can promote rangeland health and watershed function/riparian, monitoring stubble height to determine when to move livestock during the fall can be difficult and may result in exceeding stubble height targets. If this were to occur, there may be an insufficient amount of time left in the growing season to re-grow the vegetation that protects riparian areas from high spring flows. In addition, during the summer and fall livestock woody vegetation is more palatable to livestock and could be exceeded within a short amount of time (days). Exceeding targets periodically during the summer or fall seasons could offset all improvement in woody vegetation during years when stubble heights are not exceeded (BLM 2006). Alternative 3 would thus ensure stubble height standards are not exceeded by excluding or discouraging livestock grazing during the hot season. Beneficial effects to rangeland health standard for watershed function/riparian would be major. Beneficial effects would be realized faster than under Alternatives 1 and 2, since there would be no chance that grazing would occur during the hot season.

Impacts from Lands and Realty

ROWs

Impacts would be similar to those identified under Alternative 1, but beneficial impacts would be less extensive due to fewer acres within avoidance or exclusion areas; however, beneficial

impacts would be more extensive than under Alternative 2. Overall, beneficial impacts would remain in the moderate to major range (as identified under Alternative 1).

Utility/Travel and Transportation Corridors

Impacts would be the same as described under the No Action Alternative.

Alternative 4

Impacts same as under Alternative 1

- Impacts from Recreation and Travel and Transportation
- Impacts from ACECs
- Impacts from Fire and Fuels Management

Impacts from Soil Resources

Biotic Crust Management

Impacts would be similar to those described under Alternative 1, except that the intensity of beneficial impacts would increase slightly under Alternative 4 due to the herbaceous utilization target being set at the lower recommended range (BLM 2001), which could increase the rate of biotic crust development. While beneficial impacts to rangeland health would increase compared to Alternative 1, overall impacts would remain in the range of minor to moderate.

Impacts from Vegetation

Management of Upland Grass and Shrub Vegetation

Impacts would be the same as identified under Alternative 1.

Upland Utilization Target

Whereas utilization levels could be set at the minimum or maximum under Alternative 1 and set at the maximum identified by Davies et al. (2008) under Alternative 2, upland grass utilization would be set at a light utilization target (21-40 percent) under Alternative 4. Light utilization has been identified as the minimum needed to reduce fire severities in Wyoming big sagebrush to a level that decreases the probability of conversion to non-native annual grass following wildfire and is the lower range required to maintain or improve grass vigor (Davies et al. 2008). Since no discernable difference was documented between utilization levels set under Alternatives 1, 2, 3 or 4, there should be no discernable effect to upland rangeland health standards. However there would be differences in the amount of residual stubble left that may have an effect on rangeland health standard, native, T&E, and locally important species (see Wildlife and Special Status, Animals).

Riparian/wetland Utilization Target

Impacts from setting a tentative minimum stubble height in riparian/wetland areas would be similar to those described under Alternative 1. The only exceptions are that all reaches of stream that can support riparian vegetation under Alternative 4 would be assigned an initial stubble height target of 6-8 inches, which would be higher than the minimum necessary to improve riparian conditions and stubble heights would be applied to all streams that flow for at least one-eighth of a mile across public lands. Having excessive stubble heights would ensure that all riparian areas would have adequate riparian stubble height target levels to maintain or improve function and condition. Beneficial impacts would thus be major and long-term, and would be realized faster than the No Action Alternative, and Alternatives 2 and 3.

Under Alternative 4, riparian stubble height targets would only apply to streams that for at least one-eighth of a mile across public lands, which means that only 1 mile of streams would meet the no stubble height criteria, and that 116 miles of streams with riparian areas would improve to a desirable rangeland health condition from setting stubble target. Impacts would thus be similar to those described under Alternative 1, but would apply to 3 more miles.

Ground Disturbance Projects in Wyoming big Sagebrush Communities

Impacts would be similar to those discussed under Alternative 1, with the exception that current levels of fragmentation would be reduced at a higher rate due to reclaiming all projects resulting in a loss of native Wyoming big sagebrush at a ratio of 1:3 (i.e., for every acre of Wyoming big sagebrush taken out of production, three acres of Wyoming big sagebrush would be reclaimed or improved). Beneficial impacts from reductions in habitat fragmentation and improvements made to rangeland health would be moderate when compared to the No Action Alternative.

Road Densities in Wyoming Big Sagebrush

Impacts would be similar to those described under Alternative 1, with the exception that the magnitude of beneficial impacts from road reduction would increase due to the proposed additional reduction in road density under Alternative 4. Beneficial impacts would range from minor to moderate depending on the mileage of roads successfully restored back to a native community.

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

Impacts would be similar to Alternative 3. Although a stubble height of 6-8 inches during the hot season would be set under Alternative 4, whereas Alternative 3 would not authorize grazing during this season, setting a restrictive stubble height of 6-8 inches would have similar effects to woody vegetation as livestock exclusion (Clary and Leininger 2000). Specifically, Clary and Leininger (2000) shows that stubble height identified in Alternative 1 (3-4 inches) would be sufficient to increase woody vegetation even when grazed grazing occurs in the hot season. However, if livestock grazing exceeds this target, especially in the hot season, all improvements

from previous years could be lost. Setting a 6-8 inch stubble height (Alternative 4) or eliminating hot season grazing (summer and fall) would result in a high probability that livestock grazing would not exceed the 3-4 inch threshold. Therefore, both Alternatives 3 and 4 have a high probability of producing minor to major beneficial effects faster than Alternative 1, which allows a 3-4 inch stubble height and changes livestock management after stubble height are exceeded two years in a row.

Seeding and Planting Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1, although impacts would be more widespread as approximately 3,000 acres would be reseeded over the life of the RMP. Such seeding efforts would increase habitat connectivity more than under any of the other alternatives and would result in moderate, beneficial effects to rangeland health.

Seeding and Planting Native Sagebrush Communities

Impacts would be similar to those described under the No Action Alternative; however, impacts would be more widespread as seeding and plantings would not be restricted within the Decision Area, which would result in more acres seeded than all previous alternatives. However, the increase in acres treated in Alternative 4, when compared to Alternatives 1, 2, 3, and the No Action Alternative, would be not enough to elevate the magnitude of effects above minor to moderate, beneficial impacts.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Impacts would be the same as described under Alternative 1.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1.

Impacts from Invasive Plants and Noxious Weeds

Early Detection and Rapid Response (EDRR)

Under Alternative 4, areas that are free of weeds would be delineated, with an emphasis on increased efforts under EDRR to keep these areas of desirable vegetation intact. As a result, more weed infestations in native vegetation communities would be identified and treated than under the other alternatives, which would reduce the probability of converting the native vegetation stand to noxious or invasive weeds. Focusing on identifying and treating noxious weeds in native plant communities would lead to the most significant beneficial impacts to rangeland health among all Alternatives. Such impacts could be long-term, major and beneficial.

Intensive Restoration of Treated Weed Sites

Impacts would be the same as described under Alternative 1.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas*

Although all range vegetative communities under Alternative 4, and not just the Wyoming big sagebrush communities, would experience no net increase in road densities, overall impacts would be the same as identified under Alternative 1. This is due to the relatively small area that would be affected by roads (approximately 50 feet from the road edge) and the low probability of converting the adjacent area to a non-native annual grass community.

Decommissioning Roads that are causing wildlife Resource Damage

Impacts would be the same as those identified under Impacts from Water Resources: Decommissioning or Improving Roads to Reduce Sediment and Impacts from Wildlife: Roads in Priority Wildlife Management Areas.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Lek for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Impacts would be similar to those described under Alternative 1, except that impacts would be slightly less widespread in the Wyoming big sagebrush community, as development would be avoided or excluded on 48 percent of the community under Alternative 4 (3 percent less than under Alternative 1). Due to the small difference in the protection of Wyoming big sagebrush from ground disturbance between Alternatives 1 and 4, the beneficial effects would likely be the same (major, long-term, beneficial).

Vegetation Treatment after Wildfires within Sage-grouse Habitat

Impacts would be the same as identified under the No Action Alternative.

Impacts from Livestock Grazing*Areas where Livestock Grazing is not authorized*

Impacts from excluding livestock grazing within the South Fork Walla Walla and Hunt Mountain ACECs and portions of the Oregon Trail, Joseph Creek, Grande Ronde, and Keating ACECs would be the same as those identified under the No Action Alternative.

Impacts from excluding livestock grazing within the Keating ACEC/RNA, Elk Exclosure on Lookout Mountain, Sutton Creek Exclosure, and Snake River Goldenweed RNA/ACEC would be the same as those identified under the No Action Alternative. Impacts from excluding grazing along the Grand Ronde River, Snake River-Brownlee reservoirs, and sage-grouse habitat areas are identified below:

Grande Ronde River

All eighteen livestock allotments adjacent to the Grande Ronde River would be closed to livestock grazing under Alternative 4. Past management has fenced most of the livestock accessible riparian areas along the Grande Ronde River. Current inspections indicate there are only six sites remaining where livestock have access to the Grande Ronde River, on a total of 1.5 miles. These six sites do not have the potential to support a riparian meadow; instead, they support a thin band of willows just above the high flow level. These allotments are typically grazed during the early spring when livestock use of riparian woody vegetation is low (BLM 2006). In fact, past monitoring has not documented excessive amounts of utilization on woody vegetation within the riparian areas, which has aided in the entire river meeting the rangeland health standard for watershed function/riparian. Excluding livestock grazing along the Grande Ronde River would thus have a negligible, beneficial impact on rangeland health in terms of watershed function/riparian.

Livestock grazing within the Grande Ronde allotments usually occurs during the early spring or fall and upland utilization levels are usually below the permitted target of 50 percent. The season of grazing and utilization values should result in a healthy and vigorous plant community (Brewer et al. 2007). In fact, current rangeland health monitoring shows that most of the uplands within the Grande Ronde River are meeting upland rangeland health standards. The areas that are not meeting rangeland health standards are typically located near old homesteads or in livestock concentration areas, which have converted to non-native annual grass communities. The sizes of these areas are typically less than 10 acres. Excluding livestock grazing within the Grande Ronde allotments would thus also have a negligible, beneficial impact on rangeland health in terms of watershed function/uplands and ecological processes.

Snake River-Brownlee

Eight allotments within the Snake River-Brownlee area would be closed to livestock grazing under Alternative 4. These allotments have a predominance of steep slopes and are marginally suitable to livestock grazing, and are generally meeting or are making significant progress towards meeting all rangeland health standards. As a result, removing livestock grazing would have a negligible, beneficial effect to rangeland health.

Sage-grouse habitat

The native pastures of the Keating Highway and Ruckles Creek allotments would be closed to livestock grazing under Alternative 4. The pastures that would be closed to grazing in Keating Highway Allotment do not have riparian areas and the uplands are dominated by native grasses and Wyoming big sagebrush. Similarly, Ruckles Creek Allotment is dominated by native

grasses and Wyoming big sagebrush, with the exception of the area adjacent to roads and trails that are dominated by non-native annual grasses. There is also one small riparian area historically used as a water gap for livestock watering. The size of the water gap is less than 300 feet in length. While rangeland health has not been assessed for the Keating Highway or Ruckles Creek allotments, it is expected that all applicable standards are currently met, with the possible exception of ecological processes for the East Deep Well Pasture, where trend monitoring shows an 11 percent increase in bare ground. At this time it is unclear if livestock grazing or increasing shrub cover is reducing ground cover. Since 2009, this pasture has been rested from livestock grazing or grazed during the non-critical grow stage in hopes of increasing grass production and cover. This management should continue until 2015 to determine if livestock grazing causing the reduction in ground cover. However, there is a moderate to high probability that the increase in shrub cover is causing the reduction in ground cover, which may require a sagebrush canopy reduction project to increase native grass production. There would, therefore, be negligible, beneficial impacts from excluding livestock grazing from these native pastures as rangeland health standards would not change, with the possible exception of East Deep Well Pasture of the Keating Highway Allotment. However, with or without grazing, impacts could be adverse if a wildfire burns a substantial portion of the allotments. Eliminating grazing in Wyoming big sagebrush communities could increase fine fuels (e.g., grass litter and standing grass) to a level causing high enough fire severities to kill native grasses and promote the establishment and spread of non-native annual grasses (Bates et al. 2009). Based on past fire history, the probability of a wildfire burning these pastures would be moderate to high for the expected life of this plan (20 years). If this occurs and the native pastures in the Keating Highway and Ruckles Creek allotments convert to non-native grass communities, impacts to rangeland health would be adverse, moderate, and long-term.

Livestock AUM Authorized

Alternative 4 would reduce grazing AUMs by 45 percent when compared to the No Action Alternative, which takes into account the areas closed to livestock grazing, reductions in grazing needed to meet riparian stubble height, and upland utilization targets. Therefore, the beneficial effects as a result of the 45 percent reduction in AUMs would be the same as identified in Riparian/wetland Utilization Target Areas where Livestock Grazing, which would be major.

Lands Acquired Since 1989

Impacts would be the same as identified under Alternative 1, with the exception of impacts resulting from no temporary livestock grazing being authorized within the Grande Ronde Watershed on lands acquired since 1989. This could increase fuel loads to a level where wildfire kills a majority of the native grasses, which would allow non-native grasses to be established and/or spread. However, overall impacts to rangeland health would be negligible to minor since only 2,459 acres of land has been acquired within the Grande Ronde Watershed since 1989.

Temporary Changes in Grazing Use Dates

Impacts would be the same as described under Alternative 1.

Improving Rangeland Health

Impacts would be similar to those identified under the No Action Alternative, with the exception that if changes in grazing do not make significant progress towards meeting all five rangeland health standards after two consecutive monitoring evaluations for vegetative trend, ground cover, or multiple indicators, the pasture would be rested for the life of this plan. Resting these allotments for 20 or more years would result in a desirable rangeland health rating for watershed function/riparian. On the other hand, resting for 20 or more years would increase fuel loading to a level that a wildfire could kill native grasses within a stand. If a majority of the native grasses were killed, non-native annual grasses could be established and spread through a native stand, resulting in increased fragmentation, soil erosion, and reduced plant diversity and composition. As a result, long-term (more than 15 years) livestock rest could have major adverse impacts on ecological processes and watershed function/uplands within the Wyoming big sagebrush community.

However, research suggests that long-term livestock rest along with fire suppression could increase biological crust ground cover to a level that could inhibit non-native annual grass establishment and spread (Parks 2005). The biological crust ground cover needed to inhibit the establishment and spread of non-native grasses would probably be obtained only in areas where soil pH ranges between 6.5 and 7.2, which accounts for 99 percent of the native Wyoming big sagebrush community. To obtain a biotic crust ground cover that would reduce the probability of the site converting to non-native annual may take upwards of 100 years without fire and grazing (Fike 2011). After 100 years, the site should be able to withstand fire within the historical range. It should be noted that if a fire were to occur within 100 years of grazing exclusion, the site would have a high probability of converting to a non-native annual grass community.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Impacts would be the same as identified under the No Action Alternative.

Fall Grazing

Impacts would be the same as described under Alternative 1.

Impacts from Lands and Realty*ROWs*

Impacts would be similar to those identified under Alternative 1, although beneficial impacts would be more extensive due to more acres within avoidance or exclusion areas under Alternative 4. Overall, beneficial impacts would remain within the moderate to major range.

Alternative 5Impacts same as under Alternative 1

- Impacts from Recreation and Travel and Transportation
- Impacts from ACECs

Impacts same as under Alternative 4

- Impacts from Soil Resources

Impacts from Vegetation*Management of Upland Grass and Shrub Vegetation*

The management focus under Alternative 5 would be to allow natural processes to manage sagebrush cover. As a result, sagebrush cover in mountain and Wyoming big sagebrush communities would range from Class 1 (0 percent) to Class 5 (greater than 25 percent). Since sagebrush cover would be managed primarily by insect mortality and fire frequency, estimating effects to grass production or sagebrush cover is difficult; however, it can be assumed that non-native annual grass communities would expand due to the limited control over fire frequency and severity under Alternative 5. During optimum grass production years, a 21-40 percent livestock utilization level, the primary tool to control fire severity under Alternative 5, may not be sufficient to ensure that meristematic tissue was not destroyed on a pasture/allotment scale. Also, fuel loads within pastures that have 303(d)-listed waters that would not be grazed under Alternative 5, specifically in Wyoming big sagebrush communities, would likely result in high enough fire severities and frequencies to convert the stands to a non-native annual grass community (Bates et al. 2009). Overall impacts to rangeland health would, therefore, be adverse and range from negligible to moderate, depending on the acreage converted to non-native annual grass communities.

Upland Utilization Target

Impacts would be the same as described under Alternative 4.

Riparian/wetland Utilization Target

Impacts would be the same as described under Alternative 4.

Ground Disturbance Projects in Wyoming big Sagebrush Communities

Alternative 5 would result in negligible, beneficial effects to rangeland health when compared to the No Action Alternative. This is due to the fact that broadcast seeding methods are the least effective in restoring or improving Wyoming big sagebrush communities, and, therefore, multiple treatments may be required to establish desirable vegetation, which has a slight to low probability success at improving rangeland health compared to the other alternatives that propose multiple seeding methods.

Road Densities in Wyoming Big Sagebrush

Impacts would be the same as those described under Alternative 4.

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

Livestock grazing would not be allowed within waters listed in 303(d). Not authorizing livestock grazing would reduce the amount of time required for woody vegetation to stabilize stream banks and provide shade compared to the other alternatives. Specifically, there would be a possibility that excessive use (by livestock and wildlife) could occur within Alternatives 1, 2, and 4. However, not allowing livestock grazing would reduce the probability of overutilization by browse species. Impacts would be the same to those described under Alternative 3, since in both Alternatives livestock grazing would not occur during the summer or fall when woody vegetation receives the highest use by livestock.

Seeding and Planting Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1.

Seeding and Planting Native Sagebrush Communities

Impacts would be the same as described under Alternative 4.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Impacts would be the same as described under Alternative 1.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Impacts would be the same as described under Alternative 1.

Impacts from Invasive Plants and Noxious Weeds*Early Detection and Rapid Response (EDRR)*

Impacts would be the same as described under the No Action Alternative.

Intensive Restoration of Treated Weed Sites

Under Alternative 5, restoration activities would utilize non-ground-disturbing broadcast seeding techniques to provide competitive desirable plant communities that discourage the establishment of invasive plant populations. Unlike Alternatives 1-4, the use of native plant materials would be required. Because using non-ground-disturbing methods greatly reduces the probability of establishing a desirable plant community (Sheley et al. 2006), the magnitude of beneficial effects would be lower than under Alternatives 1-4, and may even be negligible.

Impacts from Wildlife*Roads in Priority Wildlife Management Areas*

Impacts would be the same as identified under Alternative 4

Decommissioning Roads that are causing wildlife Resource Damage

Impacts would be the same as identified under Impacts from Water Resources: Decommissioning or Improving Roads to Reduce Sediment and Impacts from Wildlife: Roads in Priority Wildlife Management Areas.

Impacts from Special Status Species (Wildlife)*Buffers around Sage-grouse Leks for Wind Developments, Ground-level Structures, MET towers, and Power Transmission Lines*

Impacts would be the same as those described under Alternative 1, except that impacts would be more widespread because development would be avoided or excluded on 64 percent of the Wyoming big sagebrush community and 60 percent the basin big sagebrush community. This would result in 13 percent more of both communities protected under Alternative 5.

Vegetation Treatment after Wildfires within Sage-grouse Habitat

Impacts would be the same as identified under the No Action Alternative.

Impacts from Fire and Fuels Management*Management of Fuel Conditions outside the Wildland-Urban Interface*

Impacts would be the same as described under Alternative 1.

Impacts from Livestock Grazing*Areas where Livestock Grazing is not authorized*

Impacts would be the same as described under Alternative 4.

Livestock AUM Authorized

Impacts would be the same as identified under Alternative 1.

Lands Acquired Since 1986

Impacts would be the same as identified under Alternative 4.

Temporary Changes in Grazing Use Dates

Impacts would be the same as identified under Alternative 1.

Improving Rangeland Health

Impacts would be the same as identified under Alternative 4.

Exclude Livestock Grazing from Areas Where Livestock Grazing is Incompatible with Riparian Management.

Impacts would be the same as identified under the No Action Alternative.

Fall Grazing

Impacts would be the same as identified under Alternative 1.

Impacts from Lands and Realty*ROWS*

Alternative 5 has the most protections for vegetation resources; however the increased protections would not increase the magnitude of beneficial effect when compared to Alternative 4.

Utility/Travel and Transportation Corridors

Impacts would be the same as identified under the No Action Alternative.

Alternative 5a

Impacts from actions proposed under Alternative 5a would be the same as from those proposed under Alternative 5, with exceptions that are presented below.

Impacts from Soil Resources

Impacts would be similar to those as described under Alternative 4, except that beneficial impacts would slightly increase under Alternative 5a due to the expectation that herbaceous utilization from wildlife would be slight (6-20 percent; BLM 2001), which would increase the rate of biotic crust development. While beneficial impacts to rangeland health would increase compared to Alternative 4, overall impacts would remain in the range of minor to moderate.

Impacts from Vegetative Communities*Management of Upland Grass and Shrub Vegetation*

The management focus under Alternative 5a would be to allow natural processes to manage sagebrush cover. However, livestock grazing would not be authorized throughout the Decision Area to control fire severities. Fuel loads would be high enough to convert either part of or the entire Wyoming big sagebrush community to a non-native annual grass if a wildfire occurred before biotic crust ground cover is sufficient to reduce non-native annual grass seed sources (e.g., 20 years). As a result, impacts to rangeland health would be adverse and range from negligible to major, depending on the acreage converted to non-native annual grass.

Upland Utilization Target

In absence of livestock grazing, the buildup of litter and residual vegetation would increase fire intensity to a point of killing native bunch grass (Bates et al. 2009). A research study conducted in Burns, Oregon found that long-term exclusion of livestock resulted in decreased native bunch grass and increased noxious non-native annual grasses after wildfires (Bates et al. 2009). Light to moderate grazing would be needed to maintain the native sagebrush community by keeping fire severities to a point where few native plants are killed. Excluding livestock for the life of the RMP would thus have a moderate to high probability of major, long-term, adverse effects to rangeland health for watershed function/uplands and biologic integrity.

Riparian/wetland Utilization Target

Impacts would be same to Alternative 4 because excluding livestock grazing would yield the same results to rangeland health as setting a 6-8 inch riparian stubble height (Clary and Lininger 2000)

Increasing Woody Vegetation in 303(d)-Listed Streams for Water Temperature

Impacts would be the same as identified under Alternative 4.

Seeding and Planting Non-Native Annual Grass Communities

Aerial or other broadcast seeding methods would be the only method used to improve ecological processes and soil/site stability. In addition, only native species would be used. Research documents that broadcast seeding methods have a low probability of successfully restoring a non-native annual grass community (Campbell and Swain 1973; Allen 1995). Therefore, the acreage of non-native annual grass restored to a point where rangeland health is met would be less than under Alternatives 1, 2, 3, and 4. Furthermore, Alternative 5 would likely result in negligible to minor, beneficial improvements to species composition and diversity when compared to the No Action Alternative.

Seeding and Planting Native Sagebrush Communities

Impacts would be the same as identified under Alternative 4.

Resting Livestock Grazing After Fire or Rehabilitation Projects

Livestock grazing would not be authorized within the Decision Area. Therefore, livestock grazing would be rested indefinitely after a fire. Impacts would be the same as Alternative 5a, Upland Utilization Target.

Reducing Fine Fuel and Fire Frequency in Non-Native Annual Grass Communities

Livestock grazing would not be authorized to reduce fine fuels loads in non-native annual grass communities under Alternative 5. As a result, fire severities could be elevated to a point where adjacent native Wyoming big sagebrush stands could be converted to non-native annual communities at a higher level than identified in the No Action Alternative, which allows periodic early spring grazing. The long-term, adverse effect to rangeland health would be moderate in comparison to minor under the No Action Alternative.

Impacts from Livestock Grazing*Areas where Livestock Grazing is not authorized*

Impacts would be the same as Alternative 5a, Upland Utilization Target (long-term, major, adverse effects).

Livestock AUM Authorized

No livestock AUMs would be permitted which would improve riparian conditions as identified in the Riparian/wetland Utilization Target. On the other hand, if a wildfire were to occur within a Wyoming big sagebrush stand where excessive standing dry grass would be allowed to accumulate due to a lack of grazing, the native community would likely convert to a non-native annual grass stand (Bates et al. 2009). Since past fire history has indicated that the probability of a wildfire would be moderate to high, such an adverse impact would likely be major over the life of the RMP.

Temporary Changes in Grazing Use Dates

Impacts would be the same as Alternative 5a, Upland Utilization Target (long-term, major, adverse effects).

c. Cumulative Impacts

The BLM used rangeland health assessments, trends and MIM to determine the cumulative impacts of past and present actions for Invasive Plants and Noxious Weeds, Wildlife, Fire and Fuels Management, Cultural Resources, Facilities, Livestock Grazing, Minerals, Recreation, ACECs, and Utility Corridors and Communication. In addition, county-maintained roads have impacted rangeland health within the Decision Area. These collective actions have resulted in major adverse impacts to meeting rangeland health standards for ecological processes and watershed function/uplands. Watershed function/riparian has been primarily impacted by a combination of livestock grazing, wildlife, roads, and mining.

Threetip and Basin big Sagebrush: Threetip, basin big, and Wyoming big sagebrush communities are all susceptible to conversion to non-native annual grass following fire and ground disturbance, with Wyoming big sagebrush being the most susceptible of the three (Ypsilantis 2003 and Bunting et al. 1987). Since these sagebrush communities respond in the same manner to land management activities identified in the RMP, cumulative impacts for all these sagebrush species have been lumped together under the heading Wyoming big sagebrush.

Wyoming big Sagebrush: Wyoming big sagebrush is very susceptible to conversion to a non-native annual grass community (Bunting et al. 1987; Ypsilantis 2003). The main causes of conversion are: high severity wildfires, ground disturbance (e.g., road construction, power lines, renewable energy, OHV travel and mining), and, to a lesser degree, current livestock grazing.

Therefore, management actions would concentrate on cumulative impacts that could convert Wyoming big sagebrush to a non-native annual grass stand.

Rigid Sagebrush: Rigid sagebrush occupies stony or extremely shallow soils over bedrock, which is naturally fragmented within the Decision Area and typically surrounded by mountain big sagebrush stands. Most of the rigid sagebrush stands within the Decision Area do not have enough vegetation production to carry fire, and cattle typically avoid these areas due to the low grass production and forage plant composition. The biggest factor affecting rigid sagebrush is non-native annual grasses, specifically bulbous bluegrass. Since rigid sagebrush stands grow in stony or extremely shallow soils that have low vegetation cover, non-native annual grasses have been able to out-compete the native annual grasses. Most of the low- to mid-elevation rigid sagebrush stands near roads or other non-native annual grass seed sources have been converted. In contrast, stands surrounded by native plant communities typically have non-native annual grasses. Therefore, management actions would focus on cumulative impacts that have increased or are likely to increase the proximity of non-native annual grass seed sources to native rigid sagebrush stands.

Non-Native Grass Communities (Annuals and Perennials): All non-native annual grass stands in the Decision Area have been identified as not meeting upland rangeland health standards. Specifically, these sites typically have low biological diversity and soil stability, which are the primary elements upon which upland rangeland health standards are based. Therefore, ground-disturbing projects would have a negligible to no cumulative impact on upland rangeland health standards. The cumulative impacts analysis below will concentrate on the beneficial effects related to restoring these sites and reducing fine fuels and the adverse effects of expansion of this non-native plant community.

No Action Alternative

Wyoming Big Sagebrush

Past and Present Actions on Public Lands:

The area of analysis for cumulative impacts to Wyoming big sagebrush is defined as the Baker Planning Area boundary, which includes private lands and public land administered by the BLM. Since European settlement of this area in the mid-1800s, great changes have occurred to native plant communities. Livestock grazing before the passage of the Taylor Grazing Act (1934) was severe and occurred year round in areas that had perennial water on both private and public lands. Severe grazing, coupled with year-round grazing, resulted in the conversion of a large percentage of native Wyoming big sagebrush to non-native annual grass communities. The conversion of native to non-native annual grass communities increased localized fire frequencies to a level that adjacent native sagebrush communities could not tolerate, and further increased the spread of non-native annual grasses.

From the 1950s until the late 1990s, a portion of the converted Wyoming big sagebrush stands were seeded with introduced perennial grasses. These seedings had a major, beneficial effect on reducing soil erosion; however, in most cases, it also resulted in lower biological diversity than were found in the remnant native Wyoming big sagebrush stands. While current management (1990 to present) of non-native annual grass stands involves using a seed mixture that is either exclusively native, native with a small component of desirable non-native grasses, or in rare cases using an exclusively non-native seed mixture, these seed mixtures have not been effective in reducing soil erosion or increasing biological diversity.

Grazing management has been consistently modified in the Wyoming big sagebrush community since the passage of the Taylor Grazing Act (1934) to improve vegetation condition or rangeland health. While these changes to livestock grazing are resulting in an adequate amount of plant vigor needed to promote a healthy native plant community, there are areas where current utilization levels may not be leaving enough ground cover (e.g., litter, vegetation or biotic crust) to make significant progress towards meeting upland rangeland health standards. These areas are primarily located in the Keating, Pedro Mountain, and Baker Miscellaneous GUs, where current range permit renewal NEPA has not yet been completed.

In general, past and present fire management objectives in the Wyoming big sagebrush community have focused on keeping fires to as little acreage as possible and reducing fire frequency. Reducing fire frequency and size has aided in reducing the spread of non-native annual grasses into native Wyoming big sagebrush stands.

Past and present ground-disturbing projects within the Wyoming big sagebrush community (e.g., mining, roads, energy ROWs, and OHV use) has resulted in the spread of non-native grasses into adjoining native communities. These non-native grasses are typically observed within 100 meters of the disturbed area.

Past and Present Actions on Adjoining Private, State, and Other Federally Managed Lands

The majority of lands adjoining public lands occupied by Wyoming big sagebrush stands are privately owned. Livestock management prior to the Tyler Grazing Act (1934) of these private lands has resulted in major changes in plant species composition within Wyoming big sagebrush communities, and was primarily caused by grazing livestock year after year during the critical growth stages for forage grass. This has resulted in an undetermined amount of Wyoming big sagebrush having been converted into a non-native annual grass community. The BLM estimates that the percentage of Wyoming big sagebrush stands that has converted to non-native annual on private lands is similar to the percentage of stands on public lands (26 percent). Similar to BLM actions, a substantial amount of private lands that have converted to non-native annuals were subsequently seeded with non-native perennial grasses, the most common being crested wheatgrass. Currently, private livestock management varies.

Impacts from past and present fire management and ground-disturbing projects on private adjoining lands are similar to those identified above for past and present actions on public lands.

Current livestock management on adjoining native Wyoming big sagebrush stands is typically complementary to management on public lands, resulting in vigorous Wyoming big sagebrush stands that are able to withstand conversion to non-native annual grass stands. In general, permitted livestock operators also own lands with Wyoming big sagebrush stands that border public lands. Typically, grazing occurs on public lands during most of the critical growing season where grazing is regulated. Livestock return to private lands during the end of or after the critical growth stage. Livestock that return to private lands every year during the critical growth stage typically do not graze Wyoming big sage-bush stands due to the lack of water availability during this season (late spring to early summer). Rather, the livestock are typically moved to higher elevation on private lands with mountain big sagebrush stands where water is available and forage grasses are not yet in the critical growth stage. Therefore, in most instances, livestock grazing on adjoining Wyoming big sagebrush stands typically occurs outside of the critical growing season (i.e. early spring and fall) when livestock grazing does not affect grass vigor, resulting in a stable native community.

Reasonable Foreseeable Future Management on Public Lands

Public demands for renewable energy and ROWs would probably increase within the reasonable foreseeable future. Currently, there is a proposed 500 Kv power line that would stretch from Boardman to Hemingway (B-to-H). Most of the proposed B-to-H power line routes would adversely affect Wyoming big sagebrush on public lands within the Keating watershed through ground-disturbing activities associated with power line construction. Along power line routes, adverse effects to Wyoming big sagebrush would be minor to moderate and long-term. The effects would include conversion to non-native annual grass community and decreasing habitat connectivity.

Atmospheric CO₂ levels are expected to continue to rise, which would have a pronounced effect on vegetation growth for C3 plant communities that are water-limited or during drought years (Polley 1997). The reason for the increased vegetation growth is C3 plant water use efficiency increases with increasing CO₂ levels. Much of the increased vegetation production is expected to occur within the water-limited communities (Wyoming and mountain big sagebrush, non-native grass and mixed grasslands, Polley 1997). In contrast, wetter community types (e.g., riparian and basin big sagebrush) are expected to have a lesser degree of increased vegetation growth as a result of elevated CO₂ concentrations (Polley 1997). The increased plant growth would result in both adverse and beneficial effects. Adverse effects would include increasing fuel loads in the Wyoming big sagebrush and non-native grass communities, which could increase fire severities to a level that promotes the spread of non-native annual grasses. Beneficial effects would include increases in ground cover (vegetation and litter) during drought years when soil erosion potential is high.

Mining projects are expected to increase within the Decision Area due to high mineral prices. Currently there are 38 new mining proposals which may disturb up to 300 acres. In general, current mining management requires the disturbed area to be reclaimed. Therefore, long-term

impacts from mining on rangeland health would be negligible. On the other hand, short- and moderate-term adverse effects would be negligible to minor. However, adverse effects could potentially increase in the Wyoming big sagebrush where reclamation has a lower probability of being successful. The magnitude of effect would be dependent on the acreage of mining reclamation that was not successful; however, the magnitude of impact would be minor to moderate.

Reasonable Foreseeable Future Management on Adjoining Private Land

It is reasonable to assume that future energy and ROWs including the proposed B-to-H project would adversely affect Wyoming big sagebrush on private lands. The amount of Wyoming big sagebrush converted to a non-native annual grass community is expected to be within 328 feet (100 meters) of soil-disturbed areas (e.g., power line access roads). These power line projects would increase the acreage suitable for renewable energy development (e.g., winds and solar). The gentle slopes found within the Wyoming big sagebrush community are more conducive to solar energy than wind development. Solar energy developments would remove all the native vegetation, compact soils, and convert the vegetation adjacent to the solar energy development and access roads to a non-native annual grass community, resulting in long-term, adverse effects that could range from minor to moderate depending on the acreage developed. The increase in non-native grasses as a result of energy development could increase the fire frequency of native Wyoming big sagebrush public land adjacent to private lands. If this were to occur, there would be a moderate to high probability that the adjacent public lands would be converted to non-native annual grasses.

Atmospheric CO₂ levels are expected to continue to rise, which would have a pronounced effect on vegetation growth for C3 plant communities that are water-limited or during drought years. This may have an effect on adjoining public lands by increasing fuel continuity and load during drought years. In general, fuel loads during a drought year are not capable of carrying fire across large areas within the Wyoming big sagebrush community. However, rising CO₂ levels may result in sufficient grass and shrub production to carry fire during droughts. If this were to occur, fire could spread from private land to public land and vice versa. In addition, fire frequencies and severities could rise, resulting in a higher probability of converting native Wyoming big sagebrush stands into non-native annual grass stands and an increase in habitat fragmentation.

Mining activity is expected to increase on private lands within the reasonable foreseeable future due to expected increases in mineral prices. Unlike public lands, private lands are not required to be reclaimed. Therefore, a potential for increased acres of non-native annual grasses exists, which could have a negligible to minor, adverse effect to public lands by creating seed sources and increasing fuels in areas adjacent to public lands.

Summary of Impacts under the No Action Alternative

Management under the No Action Alternative would rely on modifying livestock grazing, reducing sagebrush canopy cover and implementing an EDRR weedy treatment strategy to

improve rangeland health on a watershed scale. Modifications to livestock grazing would be the most widely used tool, since sagebrush canopy cover reductions in many areas conflict with wildlife management. Improvement using this method would be expected to be slow and may require more than one cycle of changes to livestock grazing, especially in areas where sagebrush cover is high (greater than 20 percent). Minor to moderate, beneficial improvements to upland rangeland health standards would likely not occur for 10-20 years.

Conversely, future ground-disturbing projects and wildfire management would result in increased spread of non-native grasses and other noxious weeds within the Decision Area. Increases in noxious weeds are expected within a year of ground disturbance or higher severity wildfires. Since non-native annual grass stands are difficult to improve, under the No Action Alternative, it is expected that the acreage would increase with time. There is also a moderate to high probability that the number of acres converted to non-native grasses under the No Action Alternative could be similar to or higher than the number of acres improved through modifications to grazing, sagebrush reduction projects and EDRR.

Cumulative Impacts

Taking into consideration the beneficial effects of modifying livestock grazing, reducing sagebrush canopy cover and implementing EDRR and the adverse effects of ground-disturbing projects, wildfire management, past livestock, and fire management would be expected to result in minor, adverse to moderate, beneficial impacts to rangeland health within the Wyoming big sagebrush community. Specifically, if the B2H power line ROW were to intersect the lower elevation of the Keating Valley, and if there were to be fire frequency increases due to climate change, as Brown et al. (2004) have suggested, the adverse effects would outweigh all gains made from modifying livestock grazing, reducing sagebrush canopy cover, and implementing EDRR. These factors would result in minor cumulative adverse effects. However, if the B2H power line ROW avoided the lower elevation of the Keating Valley and livestock management was sufficient for reducing fire severity, the overall cumulative impact to Wyoming big sagebrush would be moderate and beneficial.

Mountain Big Sagebrush

Mountain big sagebrush have a low risk of conversion to a non-native annual grass community, which is thought to be associated with higher precipitation and lower winter temperatures than other sagebrush communities (Ypsilantis 2004; Bunting et al. 1987). The mixed grasslands within the Decision Area also have higher precipitation and lower winter temperatures than other, more susceptible sagebrush types (Wyoming big sagebrush, threetip and basin big sagebrush), which is due to the high elevation where this community type grows. Therefore, from this point forward the analysis of impacts to mountain big sagebrush will also apply to mixed grasslands.

Unlike Wyoming big sagebrush, mountain big sagebrush is resistant to the spread and establishment of non-native annual grasses (Ypsilantis 2004; Bunting et al. 1987). Specifically,

non-native annual grasses are typically contained to the area immediately adjacent to ground disturbances (e.g., road construction, power lines, OHV travel and mining). Due to the negligible, adverse effect to upland rangeland health, ground disturbance management actions will not be further analyzed under the cumulative impacts. The overriding factors influencing the cumulative impacts for mountain big sagebrush would be juniper encroachment and, to a lesser degree, livestock grazing on both public and other lands. Therefore, cumulative impacts would focus on the management of juniper reduction and changes to livestock grazing.

Past and Present Actions on BLM Administered Lands:

Mountain big sagebrush is the most resistant to non-native grass proliferation found within the Decision Area; however, it is susceptible to the encroachment of juniper. Previous fire suppression management has resulted in the expansion of juniper into the mountain big sagebrush community. Conversely, present vegetation management has focused on restoring mountain big sagebrush by treating phase 1 and 2 juniper stands, but treatments have not kept pace with the encroachment. The BLM has constructed a vegetation map utilizing NRCS soil data that shows that there are 44,000 more acres of juniper than what was previously thought, and has resulted in major adverse effects to rangeland health.

Lower elevation mountain big sagebrush stands have been converted to non-native annual grass communities, which occurred before the passage of the Taylor Grazing Act of 1934. This conversion to a non-native community is probably related to past livestock management where grazing was not regulated during the critical growing season and frequent or high severity fires, which has been shown to reduce the vigor of native perennial grass species (Brewer et al. 2008; Bates et al. 2009). However, current livestock grazing is having minor moderate adverse impacts on native Mountain big sagebrush community since grazing management in most instances is adequate during the critical growth stage for key native grass (i.e. bluebunch wheatgrass, Idaho Fescue and needle-and-thread). The areas that are being impacted by current grazing are located in the Keating, Baker Miscellaneous, and Pedro Mountain GUs where grazing permit renewal NEPA has not been completed. In addition, much of the mountain big sagebrush community is not suitable for livestock grazing due to steep slopes.

Most of the acreage not meeting rangeland health standards within the mountain big sagebrush is a result of elevated sagebrush cover caused by past and present fire management, reduced sagebrush cover caused by wildfire or juniper encroachment that is resulting in higher soil erosion, and reduced shrub, grass, and forb cover, all of which are having a major adverse effect to rangeland health.

Past and Present Actions on Adjoining Private, State, and Other Federally Managed Lands

Most of the mountain big sagebrush community within the Decision Area is bordered by private land and USFS lands. Private land past fire suppression management has resulted in the expansion of juniper into the mountain big sagebrush community. However, current management direction has changed and private land owners are now removing juniper for

mountain big sagebrush communities. The increase in area treated is in part the result of an NRCS project that pays landowners to remove juniper trees to improve sagebrush habitat.

Reasonable Foreseeable Future Management on Public Land

It is reasonable to assume that future power line projects, including the proposed B-to-H project, would adversely affect mountain big sagebrush on public lands. However, the magnitude of effect would be expected to be negligible due to the high productivity and resiliency of this community to resist conversion into non-native annual grass.

Atmospheric CO₂ levels are expected to continue to rise, which would have a pronounced effect on vegetation growth for C3 plant communities that are water-limited. The increase in vegetation production would increase fuel loads and subsequently increase potential fire severity. The percent increase in production would probably be the highest during drought years and would likely be lower than what would be realized in the dryer Wyoming big sagebrush community. At this time, it is unclear if future increases in fire severity and frequency would lead to the conversion of native mountain big sagebrush communities to non-native annual grasses. Therefore, the magnitude of adverse effect as a result of climate change is difficult to determine, but the BLM expects that the adverse impacts should range from negligible to moderate. Global climate change may also affect non-native grass establishment and spread within the mountain big sagebrush community. Climate change models using expected precipitation and temperature have predicted either no change or a slight increase in the area suitable for non-native grass conversion within the next 100 years. It is assumed that most of the increased suitable area identified by this model would be in mountain big sagebrush communities. However, it is unclear if these effects would be noticeable within the life expectancy of this plan (20 years), or even if they would occur at all.

Mountain big sagebrush plant communities have a high to moderate probability of successful restoration after ground-disturbing projects. This is due to the fact that this plant community receives a higher amount of precipitation in comparison to Wyoming big sagebrush, and that it grows in higher elevations where low temperatures inhibit the spread of non-native annual grasses. The BLM does not know the exact acreage of mountain big sagebrush that would be affected, but estimates that it would be less than 300 acres. Therefore, adverse effects would be negligible to moderate, and, expected to occur only in the short and medium term, due to the high potential for restoration.

Reasonable Foreseeable Future Management on Adjoining Private, State, and Other Federally Managed Lands

The effects would be the same as those identified in Reasonable Foreseeable Future Management on Public Land, with the exception that it would be likely that juniper treatments would increase in the future to increase forage production for livestock and to take advantage of the NRCS project. This increase in juniper reduction on private lands would be expected to improve

landscape scale habitat connectivity and reduce the seed source and spread of juniper from private to public lands.

Summary of Impacts under the No Action Alternative

Management under the No Action Alternative would rely on juniper reduction and modifications to livestock grazing to improve mountain big sagebrush stands. However, the acres of juniper that would be treated under the No Action Alternative are not sufficient to offset the level of juniper encroachment into the mountain big sagebrush community, resulting negligible, adverse effects to upland rangeland health. Modifying livestock grazing within the mountain big sagebrush community would be the main tool used to improve rangeland health where junipers are not present. Adjustments to livestock utilization or increasing the amount of critical growth stage deferment have been shown to be effective in improving or maintaining upland rangeland health within the mountain big sagebrush community. Therefore, the No Action Alternative would likely have major beneficial effects in mountain big sagebrush stands where juniper is not present and is currently not meeting rangeland health standards. However, changes to livestock grazing would likely take 10 years to be realized since the changes to grazing would be developed in future allotment specific NEPA projects. Conversely, juniper reduction treatments are not likely to keep pace with expansion and would result in major, adverse effect to rangeland health in the long term.

Cumulative Impact

Taking into consideration the beneficial effects of specialized grazing systems, the overall cumulative impact of juniper reduction on private and public lands would result in minor to moderate, beneficial effects to upland rangeland health, which would take 10 years to realize.

Rigid Sagebrush

Past and Present Actions on BLM Administered Lands:

The largest impact to rigid sagebrush stands would likely be roads and OHV travel, which would result in an increase in non-native annual grass seed source. Past BLM travel management did not identify the risk of converting rigid sagebrush stands when determining the placement of roads or designating open areas for motorized travel, which has lead to 15 percent of the historical rigid sagebrush stands being converted to non-native annual grass communities.

Past and Present Actions on Adjoining Private, State, and Other Federally Managed Lands

Roads on adjoining lands have also increased the amount of non-native annual grass seed sources adjacent to rigid sagebrush stands, which may have contributed to the conversion of rigid sagebrush on public lands.

Reasonable Foreseeable Future Management on Public Land

It is likely that the public demand for wind energy will increase in the future and that a portion of these developments will be constructed on lands within the Decision Area. The roads and power lines associated with wind developments have the potential to convert native rigid sagebrush stands to non-native annual grass dominated stands by increasing the number of seed sources. The magnitude of the adverse effect would be dependent on the acreage of rigid sagebrush converted to a non-native annual grass community; however, it would be expected to be negligible. In addition, OHV use would be expected to also have a negligible effect on rigid sagebrush, due to the fact that rigid sagebrush habitat is associated with rocky high elevation areas that are not as conducive to OHV use in comparison to Wyoming and basin big sagebrush communities.

Past and Present Actions on Adjoining Private, State, and Other Federally Managed Lands

Impacts would be the same as described under Reasonable Foreseeable Future Management on Public Land.

Summary of Impacts No Action

The main action that affects rigid sagebrush is the spread of non-native annual grass through ground disturbance projects (e.g., roads, power lines or development). Specifically, ground disturbance projects have a high probability of converting native rigid sagebrush stands into non-native annual grass community, especially if there is a seed source in close proximity.

Restoring rigid sagebrush stands has a low probability of success due to the low site potential (extremely shallow or rocky soils) in which it grows. Therefore, no restoration would be attempted within the rigid sagebrush stands.

Native rigid sagebrush stands have low forage production potential and are not regularly used by livestock. Therefore, the effects from livestock grazing would be negligible within the rigid sagebrush community.

Cumulative Impact

The cumulative impact, which takes into consideration adverse ground-disturbing actions on both public and private lands, would range from negligible to minor and would be dependent on the number of acres converted by non-native annual grasses.

Non Native Grass Communities (Annuals and Perennials)*Past and Present Actions on BLM Administered Lands:*

Prior to the current Baker RMP (BLM 1989), the management focus was to improve non-native annual grass stands by seeding with highly competitive non-native perennial grasses. These

seedings were highly effective in reducing fire frequency and stabilizing soils. However, biological diversity in the stands was low, primarily consisting of one dominate grass, low shrub cover, and few forbs. During this period, scientific grazing management was also being developed to increase the life expectancy and maintain high productivity of the seeding. The findings of these studies and subsequent grazing systems have been taken into account in the Decision Area and, in most cases, seeded stands currently have less than 15 percent canopy cover and should meet upland rangeland health standards. However, there are stands that have greater than 15 percent sagebrush cover, which is inhibiting grass production.

During the mid-1990s, the need for increased biological diversity in non-native grass communities was identified, resulting in the formulation of seed mixtures with late seral native species and non-native perennial grasses, or, in some instances, only late seral native species. In most cases the native species component was unsuccessful, and, due to low seeding rates, the non-native grass component was only marginally successful.

Past and Present Actions on Adjoining Private, State, and Other Federally Managed Lands

From the 1950s to the present, non-native annual grass stands have been seeded with non-perennial grasses on adjacent private lands. Due to the high cost of native seeds and low success rates, most if not all, adjacent land owners seed mixtures were comprised of 1 or 2 non-native grasses. Therefore, private non-native seedings have low biological diversity in a manner similar to public lands. Furthermore, there is an economic rationale to reduce shrub cover on private lands in order to increase grass production. As a result, in many instances, private land seedings have lower shrub cover and higher grass production than adjacent public lands.

Most non-native annual grass stands on private lands are grazed during the early spring or fall when the non-native annual grasses are palatable to livestock. Grazing during this time reduces fine fuels (dry grass), which reduces fire frequencies and severities (Diamond 2009). This reduced fire frequency on private land has a minor, beneficial effect on adjacent native Wyoming big sagebrush stands that are sensitive to frequent or high severity fires.

Summary of Impacts No Action

Under the No Action Alternative, non-native annual grasses would continue to be seeded by using native or a mixture of non-native and native late seral species. Therefore, increasing biological diversity would not be expected to occur within these stands. Rest-rotation grazing systems would continue to be authorized within the non-native annual grass community. This would increase fine fuel loads (dry grass) to a level that could result in higher fire frequency and severity, which could convert adjacent native Wyoming big sagebrush stands to non-native annual grass.

Non-native perennial grass seedings would be managed primarily for livestock production and, to a lesser degree, wildlife. Specifically, in areas that were identified as important deer winter ranges, livestock grazing would continue to be restricted during the early spring. Forage

utilization targets would continue to be set at 60 percent, which, in most instances, would be sufficient to meet rangeland upland standards, but may not be appropriate for wildlife habitat management (see the Wildlife section within this chapter).

Cumulative Impacts

The cumulative impact, which takes into consideration livestock management on private and public lands and restoration of non-native annual grass stands, would result in negligible, beneficial effects to upland rangeland health.

Riparian Community

Past and Present Actions on BLM Administered Lands:

Prior to the current RMP (BLM 1989), riparian areas were managed as sacrifice areas, and livestock management in most instances was not conducive for improving or maintaining riparian health. Once the current Baker RMP (BLM 1989) was implemented, hot season “summer grazing” was eliminated, AUMs were reduced, and a rest-rotation grazing system was developed for most allotments that had perennial streams. However, current assessments (1999-present) indicate that these changes were not adequate to improve riparian conditions. Current assessments have identified historic and present livestock grazing as the largest contributing factor, which has resulted in major adverse effects. In contrast, impacts from mining and roads have been moderate.

Current livestock management is contributing to 117 miles of riparian areas not meeting rangeland health standards. It should be noted that of the 117 miles impacted by livestock grazing, 85 percent are also affected by at least one other factor (i.e., roads, mining, or wildlife). Current research indicates that setting minimum allowable riparian stubble heights or utilization level is an effective tool to improve or maintain riparian areas. However, utilization or stubble height targets have been set only in livestock allotments that have listed fish species and the Pritchard Creek Allotment.

Past and Present Actions on Adjoining Private and Other Public Lands:

There are 579 operations and 957 ranchers in the subbasin. Most ranchers are well-educated and aware of local resource concerns, have experience with conservation, seek out conservation information, and have a positive stewardship attitude. This willingness of private land owners has resulted in joint projects with the Natural Resource Conservation Service (NRCS). Currently, there are more than 21,000 acres of projects designed to improve riparian and upland health. These projects include erosion control, irrigation water management, nutrient management, pest management, prescribed grazing, tree and shrub plantings, wildlife habitat management, and wetlands management (NRCS 2006). These private land projects have reduced soil erosion by 55 percent within a 25 year period (NRCS 2006), which would have major beneficial effects to adjoining public lands.

In addition, a few livestock operators within the Powder River belong to Oregon Country Natural Beef, which is third party-certified for environmentally sensitive land management practices both on public and private lands (<http://oregoncountrybeef.com>). This type of private land management has aided in the improvement of adjacent public land riparian function and condition by slowing maximum flow rates during spring runoff, which protects public land riparian areas from excessive stream channel down-cutting and protects riparian vegetation from being uprooted. Currently, there are only a few adjacent landowners associated with Oregon Country Natural Beef and, therefore, the beneficial effect to public land would be negligible to minor.

Adjacent land administered by the Wallowa-Whitman National Forest is having a beneficial impact to public land management. Currently, the Wallowa-Whitman National Forest administers lands adjacent to the Decision Area in order to maintain or enhance the unique and valuable characteristics of riparian areas, and to maintain or improve water quality, stream flows, wildlife habitat and fish habitat (USFS 1990). Management tools used to improve and enhance riparian areas that are significantly different from the Decision Areas past management are permitted grass stubble height standards. Unlike the BLM, the USFS has set riparian stubble heights for livestock grazing allotments. The stubble heights permitted by the USFS are within the range identified by Clary and Leininger (1999) and, in most instances, should be adequate to meet riparian objectives and goals.

Reasonable Foreseeable Future Management on Public Land

The No Action Alternative would eventually set minimum riparian stubble height targets through the grazing permit renewal process, which may take 5 or more years to complete. It is expected that stubble heights targets would continue to be set based on the presence of listed fish. Specifically, allotments that have listed fish habitat stubble heights would be set at 6-8 inches and those that do not have listed fish would be set at 3-4 inches. Research conducted by Clary and Leininger (1999) shows that in most situations a 3-4 inch stubble height is sufficient to make improvements to riparian condition and function. However, there are limited instances where a 3-4 inch stubble height is insufficient for improving riparian condition and function. These instances may include pastures grazed during the hot season where increased woody vegetation is desired and stream banks that are highly sensitive to livestock grazing (e.g., Rosgen channel types B5, B6, C5, C6, F5, and F6). In these instances, setting a 3-4 inch stubble height would be insufficient for improving riparian function and condition.

Reasonable Foreseeable Future Management on Adjoining Private and Other Public Lands

It is reasonable to assume that private land owners who take part in Country Natural Beef and NRCS program will increase in the future. Specifically, Country Natural Beef have seen an exponential growth in demand for their product since being created in 1984, and this trend is expected to continue into the future (Country Natural Beef 2011). In addition, the NRCS has funding to pay landowners to remove juniper in sage-grouse habitat and improve riparian areas.

These lands are expected to meet rangeland health standards for watershed function/riparian, which would lower the probability of excessive sediment and temperatures when water flow reaches public lands.

However, some adjacent land owners may not take part in these programs. In these situations, channel down-cutting, head-cuts, and shallow rooted vegetation may occur which would increase the probability of excessive sediment and temperatures on downstream public land.

Summary of Impacts under No Action

Proper function and condition riparian assessment conducted by BLM personnel show that livestock grazing is the greatest contributing factor adversely affecting rangeland health standards for watershed function, followed by wildlife, roads, and mining, respectively. Therefore, the cumulative impacts analysis will focus on past, present, and reasonably foreseeable management of livestock grazing, wildlife, roads and mining.

The No Action Alternative would continue to set riparian stubble height/utilization and modify season of use during the permit renewal process. Riparian stubble height/utilization would be set for each livestock allotment within 5-10 years. Once stubble heights are set, it should take an additional 5-10 years to see improvement in vegetation structure and function (BLM 2006). Therefore, under the No Action Alternative, beneficial, minor to major improvements to watershed function/riparian would likely take 10-20 years.

Road improvement or decommissioning and historic mining reclamation would not be a high priority under the No Action Alternative. Mining and roads contribute to 59 stream miles that are currently not meeting rangeland health standards for watershed function/riparian. Of the 59 miles affected by roads and or mining, 55 miles are also impacted by livestock grazing. It is unclear at this time if changes to livestock grazing alone would result in a desirable watershed function/riparian rating, or if improvement to roads and or mining reclamation is needed.

Wildlife impacts to riparian areas are the second greatest contributing factor adversely impacting watershed function/riparian and account for 78 stream miles. However, it should be noted that of the 78 miles affected by wildlife, 4 miles are affected by livestock grazing, 33 miles by roads, and 31 miles by the combination of livestock grazing and roads. Therefore, wildlife alone only impacts 10 miles of riparian area. It is unclear if changes to livestock grazing alone would result in a desirable watershed function/riparian rating for the 64 miles of stream impacted partially by livestock grazing, or if improvements to wildlife management would be required.

Cumulative Impacts

The overall cumulative impact, which takes into consideration beneficial effects of NRCS and Oregon Natural Beef projects on private lands, USFS livestock management on adjoining lands, changes to livestock grazing within the Decision Area, and adverse effects of not addressing roads, historic mining, or wildlife, would be long-term, beneficial and would range from minor

to major. The magnitude of effect would be dependent on the miles of stream improved by changes to livestock grazing alone.

Alternative 1

Wyoming Big Sagebrush

Summary of Impacts under Alternative 1

Management under Alternative 1 would rely on modifying livestock grazing, reducing sagebrush canopy cover and implementing an EDRR weedy treatment strategy to improve rangeland health on a watershed scale. Modifications to livestock grazing would be the most widely used tool since sagebrush canopy cover reductions in many areas conflict with wildlife management. The difference between Alternative 1 and the No Action Alternative would consider key plant growth stage, biotic crusts, and wildlife habitat when modifying livestock grazing to improve rangeland health. Taking these factors into consideration should reduce the amount of modifications to grazing management that would be needed to improve upland rangeland health within the Wyoming big sagebrush community when compared to the No Action Alternative. Therefore, it is expected that noticeable improvements on a watershed scale would not occur within 5-10 years, although this is half the expected time when compared to the 10-20 years that it would take under the No Action Alternative.

In addition, Alternative 1 would have more acres closed or restricted to vehicular travel, require ground-disturbing projects to restore Wyoming big sagebrush stands that are either not meeting rangeland health standards or were converted to a non-native community, and would have higher fire suppression priority for Wyoming big sagebrush in comparison to the No Action Alternative. These differences in management direction would reduce the future spread of non-native annual grasses when compared to the No Action Alternative. In addition, there would be a moderate to high probability that the acres of non-native annual grass would decrease from current levels due to more effective seeding methods and requirements to restore Wyoming big sagebrush as mitigation for ground-disturbing projects.

Cumulative Impacts

Taking into consideration the beneficial effects of modifying livestock grazing, reducing sagebrush canopy cover, restricting OHV use, implementing EDRR, mitigating ground-disturbing projects, wildfire management, and the adverse effects of past livestock and fire management, this alternative would result in major, beneficial effects to upland rangeland health standard(s).

Mountain Big Sagebrush*Summary of Impacts under Alternative 1*

Impacts would be the same as those described in the No Action Alternative, except that juniper treatments would increase to a maximum of 20,000 acres in ten years, as compared to 9,000 acres treated under the No Action Alternative. This increase in juniper treatment would restore most of the juniper expansion area within the 20 year life of this plan, resulting in major, long-term, beneficial effects.

Changes to livestock grazing would result in similar beneficial effects (major) as the No Action Alternative. However, Alternative 1 would take 5-10 years less time to realize this magnitude of effect.

Cumulative Impact

The cumulative impact of juniper reduction on private and public lands, which takes into consideration beneficial effects of developing specialized grazing systems, would result in major beneficial effects to upland rangeland health. However, major beneficial effects would take 5-10 years to be realized.

Rigid Sagebrush*Summary of Impacts under Alternative 1*

Impacts would be the same as described under the No Action Alternative.

Cumulative Impacts

Impact would be the same as described under the No Action Alternative.

Non-Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 1*

Of the 3,000 acres of high site potential non-native annual stands, 1,500-2,000 acres would be seeded using assisted succession where the site was initially seeded with an early seral native or non-native grass (e.g., squirrel tail or crested wheatgrass), then re-seeded with a late seral seed mixture. This method has been shown to be highly effective in increasing the biological diversity of a non-native annual grass stand. In addition, rest-rotation grazing systems would no longer be authorized within the non-native annual grass stands.

Non-native perennial seedings would be managed to increase sagebrush cover by temporarily changing livestock grazing and or seeding native shrub. Both methods have been shown to be

highly successful in increasing shrub cover. However, increasing native shrub cover would have a negligible, beneficial effect on rangeland health, since most stands assessed for rangeland health are currently meeting standards. In Alternative 1, non-native perennial grass stands would not be seeded with native grass and forb species that increase biological diversity.

Cumulative Impacts

The cumulative impact which takes into consideration livestock management on private and public lands and the restoration of non-native annual grass stands would result in moderate and beneficial effects to upland rangeland health.

Riparian Community

Summary of Impacts Alternative 1

Alternative 1 would modify current livestock management, improve or decommission roads, and improve riparian areas where historic mining has resulted in an undesirable rangeland health rating for watershed function/riparian.

Livestock grazing: Setting stubble height standards for riparian areas has had success in improving and maintaining rangeland health. Under Alternative 1, stubble height standards would be applied to every stream that flows for more than a quarter mile across public lands, which has the potential to improve 113 miles of streams. Therefore, changes to livestock management are likely to be a critical component in achieving beneficial effects to watershed function/riparian.

Roads, Historic Mining, Historic Grazing and Other Disturbances: A total of 50 miles of creek affected in part by roads, mining historic grazing, or other disturbances would be improved every 10 years. Since 51 percent of the streams within the Decision Area are impacted by at least two factors (livestock grazing, wildlife, roads and mining), and for 19 percent no factor was identified, restoration of streams using methods other than changes to livestock grazing are likely to be required in order to result in major beneficial impacts.

Cumulative Impacts

The overall cumulative impact, which takes into consideration beneficial effects of NRCS and Oregon Natural Beef projects on private lands, USFS livestock management on adjoining lands, changes in livestock grazing within the Decision Area, and improving 50 miles of streams every 10 years coupled with the adverse effects of not addressing wildlife, would be long-term, beneficial, and major in magnitude.

*Alternative 2*Wyoming Big Sagebrush*Summary of Impacts under Alternative 2*

Unlike the No Action Alternative and Alternative 1, Alternative 2 relies more on sagebrush canopy reduction treatments (prescribed fire, herbicide, or mechanical methods) and less on modifications to livestock grazing to improve rangeland health. Reducing sagebrush cover would increase native grass production and litter in areas that are currently not meeting rangeland health standards, whereas Alternative 1 would increase biological crust cover and, to a lesser degree, increase litter. Both methods, sagebrush canopy reduction and changes to livestock management, would result in similar effects to rangeland health. However, there would be a low probability that the sagebrush canopy reduction project could result in the treated area converting to a non-native annual grass community.

Alternative 2 would have fewer acres closed or restricted to vehicular travel and lower requirements for ground-disturbing projects that restore Wyoming big sagebrush stands than Alternative 1. Similarly to Alternative 1, Alternative 2 would impose full fire suppression within the Wyoming big sagebrush community. These differences in management direction would reduce the future spread of non-native annual grasses when compared to the No Action Alternative; however, the future spread of non-native grasses would be higher than under Alternative 1.

Cumulative Impact

Taking into consideration the beneficial effects of modifying livestock grazing, reducing sagebrush canopy cover, restricting OHV use, implementing EDRR, mitigating ground-disturbing projects, wildfire management, and the adverse effects of past livestock and fire management, this alternative would result in moderate to major, beneficial effects to upland rangeland health conditions.

Mountain Big Sagebrush*Summary of Impacts under Alternative 2*

Juniper reduction would only occur in areas where livestock grazing occurs or wood products are economically viable. Juniper stands that are on steep slopes or in inaccessible areas would not likely be targeted. Alternative 2 would treat more acres of juniper than the No Action Alternative, but fewer acres than Alternative 1. Therefore, beneficial effects are likely to be minor to moderate.

Impacts as a result of changes to livestock grazing would be the same as No Action Alternative.

Cumulative Impact

The overall cumulative impact, which takes into consideration beneficial effects of developing specialized grazing systems, treating encroaching juniper stands both on public and private lands, and adverse effects of past fire management and ground-disturbing projects within the lower elevation mountain big sagebrush stands, would be moderate to major and beneficial to upland rangeland health. Similar to the No Action Alternative, beneficial effects under Alternative 2 would take 10 years to be realized.

Rigid Sagebrush*Summary of Impacts under Alternative 2*

Impacts would be the same as described under the No Action Alternative.

Cumulative Impacts

Impact would be the same as described under the No Action Alternative.

Non Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 2*

Of the 3,000 acres of high site potential non-native annual stands, 1,500 would be seeded with non-native perennial grass or assisted succession after initially seeding with non-native perennial grasses.

Similar to the No Action Alternative, Alternative 2 would manage non-native perennial seedings to promote high grass production.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Riparian Community*Summary of Impacts Alternative 2*

Livestock grazing: Same as Alternative 1, except that under Alternative 2 stubble height standards would be applied to every stream that flows for more than 1 mile across public lands, which has the potential to improve 86 miles of stream.

Roads, Historic Mining, Historic Grazing and Other Disturbances: Same as Alternative 1, except that only 20 miles of creek affected in part by roads, mining, historic grazing, or other disturbances would be improved every 10 years.

Cumulative Impacts

The overall cumulative impact, which takes into consideration beneficial effects of NRCS and Oregon Natural Beef projects on private lands, USFS livestock management on adjoining lands, changes to livestock grazing within the Decision Area, and improving 20 miles of streams every 10 years, coupled with the adverse effects of not addressing wildlife, would be long-term and beneficial, and would range between moderate to major in magnitude.

Alternative 3Wyoming Big Sagebrush*Summary of Impacts under Alternative 3*

Impacts would be the same as described under Alternative 1.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Mountain Big Sagebrush*Summary of Impacts under Alternative 3*

Impacts would be the same as described under Alternative 1.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Rigid Sagebrush*Summary of Impacts under Alternative 3*

Impacts would be the same as described under the No Action Alternative.

Cumulative Impacts

Impacts would be the same as described under the No Action Alternative.

Non Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 3*

High site potential non-native annual grass stands in high recreation areas (1,000 acres) would be managed to reduce fuel continuity by maintaining a 0-10 percent sagebrush cover and authorizing livestock forage utilization at the current target of 60 percent.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Riparian Community*Summary of Impacts Alternative 3*

Livestock grazing: Same as Alternative 1 except, under Alternative 3 stubble height standards would be applied to every stream that flows more than one half of a mile across public lands, which has the potential to improve 110 miles of stream.

Roads, Historic Mining, Historic Grazing and Other Disturbances: Same as Alternative 1, except that only 40 miles of creek affected in part by roads, mining, historic grazing, or other disturbances would be improved every 10 years.

Cumulative Impacts

The overall cumulative impact, which takes into consideration beneficial effects of NRCS and Oregon Natural Beef projects on private lands, USFS livestock management on adjoining lands, changes to livestock grazing within the Decision Area, and improving 40 miles of streams every 10 years, coupled with the adverse effects of not addressing wildlife, would result in similar beneficial effects as Alternative 1 (major, long-term). However, 10 less miles of creek would be restored under Alternative 3.

Alternative 4Wyoming Big Sagebrush*Summary of Impacts under Alternative 4*

Management under Alternative 4 would rely on modifying livestock grazing, reducing sagebrush canopy cover, and implementing EDRR weedy treatment strategy to improve rangeland health on a watershed scale. Modifications to livestock grazing would be the most widely used tool, since sagebrush canopy cover reductions in many areas conflict with wildlife management. The difference between Alternative 4 and Alternative 1 is that Alternative 4 would set a light (21-40 percent) utilization target throughout the Decision Area, regardless as to whether the allotment

meets or fails rangeland health standards. Upland rangeland health conditions would improve faster under Alternative 4, since upland utilization would be set immediately. However, the riparian stubble height would be set at the most restrictive level identified in peer reviewed research, which may result in actual utilization being less than the permitted target of light. If actual upland utilization was set below light, there may not be enough fine fuels removed to reduce wildfire frequencies and severities, which would increase the probability of converting native Wyoming big sagebrush to a non-native annual grass community.

Mitigations to ground-disturbing projects would be 33 percent greater for Alternative 4 than Alternative 1. However, the increase in acreage improved would not be substantially (500-1,000 acres) different than that realized in Alternative 1.

Similarly to Alternative 1, Alternative 4 would have the same acreage closed or restricted to vehicular travel and would impose full fire suppression within the Wyoming big sagebrush community. This difference in management would slightly reduce the future spread of non-native annual grasses in comparison to Alternative 1.

Cumulative Impact

Determining the cumulative impact of Alternative 4 is difficult since livestock management has the potential for both adverse and beneficial effects to rangeland health. In general, if utilization targets of light (21-40 percent) are achieved, or wildfire does not occur within the Wyoming big sagebrush community, then the cumulative impact would be similar to Alternative 1. However, if the upland utilization target was not achieved and was followed by a wildfire, the cumulative impact would be adverse and the magnitude would primarily be dependent on fire size, which could result in a negligible to major impact.

Mountain Big Sagebrush

Summary of Impacts under Alternative 4

Alternative 4 would be the most aggressive in treating juniper encroaching into mountain big sagebrush communities. Specifically, Alternative 4 would treat up to 30,000 acres in 10 years as compared to 20,000 under Alternative 1. It is expected that Alternative 1 would treat most, if not all, of the juniper encroachment into the mountain big sagebrush community within the 20-year life expectancy of this RMP.

Upland utilization targets would be changed through the RMP as compared to the subsequent alternatives, where utilization targets would be refined at the time of grazing permit renewal. Lowering the utilization target would ensure that all allotments would meet or exceed recommendations by Brewer et al. (2008). Setting utilization targets through the RMP would reduce the amount of time required to make improvements to upland rangeland health conditions. Therefore, major beneficial effects would be realized faster under Alternative 4.

Cumulative Impacts

Same as Alternative 1, except that 10,000 more acres of juniper encroachment would be treated and livestock utilization would be set at a level where wide spread improvements should occur within the area not meeting upland rangeland health standards. Therefore, major, beneficial effects would occur faster than under Alternative 1.

Rigid Sagebrush*Summary of Impacts under Alternative 4*

Impacts would be the same as described under the No Action Alternative.

Cumulative Impacts

Impact would be the same as described under the No Action Alternative.

Non Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 4*

All 3,000 acres of the high site potential non-native annual grass stands would be seeded using an assisted succession technique and utilizing only native species.

Unlike the No Action Alternative and Alternatives 1, 2, and 3, Alternative 4 would increase biological diversity in non-native perennial grass stands. Non-native perennial stands would be re-seeded with a mixture of early and late seral grass species, sagebrush, and, where applicable, bitterbrush. Biological diversity of native species would drastically increase from current levels, and non-native perennial grasses would only account for less than 10 percent of the vegetation cover. However, improvements to upland rangeland health conditions would be the same as under the No Action Alternative.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Riparian Community*Summary of Impacts under Alternative 4***Livestock grazing**

Same as Alternative 1 except, under Alternative 4 stubble height standards would be applied to every stream that flows for more than one-eighth of a mile across public lands, which has the potential to improve 116 miles of stream.

Roads, Historic Mining, Historic Grazing and Other Disturbances

Same as Alternative 1, except that 80 miles of stream affected in part by roads, mining, historic grazing, or other disturbances, would be improved every 10 years.

Cumulative Impacts

The overall cumulative impact, which takes into consideration beneficial effects of NRCS and Oregon Natural Beef projects on private lands, USFS livestock management on adjoining lands, changes to livestock grazing within the Decision Area, and improving 80 miles of streams every 10 years, coupled with the adverse effects of not addressing wildlife, would result in similar beneficial effects to Alternative 1. However, 30 more miles of creek would be restored under alternative 4. Therefore, major effects would be realized faster under Alternative 4 than Alternative 1.

*Alternative 5*Wyoming Big Sagebrush*Summary of Impacts under Alternative 5*

Same as Alternative 4, except that livestock grazing would be excluded in pastures or allotments that have 303(d)-listed streams, wildfire starts would be managed to meet wildlife objectives, and non-ground-disturbing seeding methods would be used to reclaim disturbed Wyoming big sagebrush communities. Removing livestock grazing within Wyoming big sagebrush stands can have both beneficial and adverse effects to upland rangeland health. Beneficial effects would be realized if all wildfires are successfully suppressed within the areas closed to livestock grazing. If this were to occur, biotic crust cover and litter would increase to a level higher than Alternatives 1-4, resulting in greater protections from soil erosion. Major beneficial improvements to rangeland health would occur within 5-10 years, which is similar to Alternative 1. However, if a wildfire burns within the areas closed to livestock grazing adverse effects could occur. The magnitude of the adverse effect would be dependent upon the size of the burned area and the severity of the fire. Brown et al. (2004) suggest that fire frequency and size are expected to increase, which would lead to a high probability that Alternative 5 would result in long-term, moderate to major, adverse effects to upland rangeland health.

In addition, wildfire starts would be managed to meet wildlife resources objectives within the Wyoming big sagebrush community. Allowing wildfires to burn in the Wyoming big sagebrush community has a low to moderate probability of converting the burned area into a non-native grass community. Therefore, there would be a low probability that prescribed wildfire could result in adverse effects. Also, the seeding methods that would be implemented in Alternative 5 have a low probability of successfully restoring a converted non-native annual grass stand. Therefore, little or no reduction in current non-native annual grass acreage would be expected, and would result in the continuation of major, adverse effects.

Cumulative Impact

Determining the cumulative impact of Alternative 5 is difficult, since livestock management and prescribed wildfire has the potential for both adverse and beneficial effects to rangeland health. Therefore, the cumulative impact would be dependent on the acres burned within the grazing exclusion area and the success of prescribed wildlife in areas where livestock grazing is authorized. If no wildfires occur within the grazing exclusion area, major, beneficial effects would be realized faster than under Alternatives 1, 3, and 4. However, if wildfire(s) burn Wyoming big sagebrush where livestock grazing was excluded, it would result in the conversion to a non-native annual grass stand. This conversion would offset all beneficial effects of excluding livestock grazing within the burned area. Therefore, the potential cumulative impact could range from major and beneficial to moderate and adverse.

Rigid Sagebrush*Summary of Impacts under Alternative 5*

Impacts would be the same as described under No Action Alternative.

Cumulative Impacts

Impacts would be the same as described under No Action Alternative.

Mountain Big Sagebrush*Summary of Impacts under Alternative 5*

Impacts would be the same as described under Alternative 1, except that juniper encroachment into mountain big sagebrush stands would be viewed as natural processes and would only be treated with prescribed wildfire. The number of acres of juniper that would burn under Alternative 5 would be less than under the No Action Alternative, where 9,000 acres would be treated on average every 10 years. As a result of only allowing prescribed wildfire to control juniper, the adverse effects to upland rangeland health would be minor to moderate.

Cumulative Impacts

Livestock forage utilization targets and grazing management would be the same as Alternative 4. Conversely, juniper management would be less than the No Action Alternative (9,000 acres every 10 years). Therefore, the cumulative impact would be beneficial and range from negligible to minor.

Non Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 5*

Of 3,000 acres of the high site potential non-native annual grass stands, 1,500-3,000 acres would be seeded using non-ground-disturbing methods, which include broadcast and no-till seeding.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Riparian Community*Summary of Impacts Alternative 4*

Impacts would be the same as described under Alternative 4.

Cumulative Impacts

Impacts would be the same as described under Alternative 4.

Alternative 5aWyoming Big Sagebrush*Summary of Impacts under Alternative 5a*

Same as Alternative 5, except that livestock grazing would be excluded from the entire Decision Area. Similar to Alternative 5, Alternative 5a would have major, beneficial effects to rangeland health, albeit slightly higher if wildfires are excluded from the Wyoming big sagebrush community. However, if wildfire(s) burn within the areas closed to livestock grazing, adverse effects could occur. The magnitude of an adverse effect would be dependent on the size of the burned area and the severity of the fire. Alternative 5a would have a greater area where fuels (dry grasses) would build up due to livestock grazing exclusion. Therefore, the probability of a wildfire(s) causing moderate to major, adverse effects would be higher than under Alternative 5.

Cumulative Impact

Same as Alternative 5, except that livestock grazing would be excluded within the entire Wyoming big sagebrush community. Therefore, the likelihood of adverse effects would increase. The potential cumulative impact could range from major and beneficial to major and adverse.

Mountain Big Sagebrush*Summary of Impacts Alternative 5a*

Livestock grazing would be excluded from the Decision Area. This would result in similar area of mountain big sagebrush meeting upland rangeland health standards as livestock management under Alternative 1. The only difference is that beneficial effects would occur at a faster rate under Alternative 5a.

Juniper encroachment would be managed in the same way as Alternative 5.

Owners of private lands who are affected by the decision to exclude livestock grazing from public lands would probably maximize the livestock stocking rate on their private lands. This type of private land management would increase the probability of conversion to non-native annual grass if grazing systems do not allow sufficient deferment during the critical growth stage of perennial native vegetation (Berwer et al. 2008). Therefore, a portion of the adjoining private lands could function as a seed source and under the right conditions (e.g. frequent high severity fires or persistent drought) and could spread into adjoining public lands.

Cumulative Impact

The cumulative impact, which takes into consideration livestock and juniper management on both public and private lands, would be the same as Alternative 4, except that there would be the possibility of future conversion of private land mountain big sagebrush into non-native annual grass stands, which could spread into the adjoining public lands. If this were to occur, the cumulative impact would be adverse and could range from negligible to moderate depending on how many acres are converted to non-native annual grass.

Rigid Sagebrush*Summary of Impacts under Alternative 5a*

Impacts would be the same as described under No Action Alternative.

Cumulative Impacts

Impact would be the same as described under No Action Alternative.

Non Native Grass Communities (Annuals and Perennials)*Summary of Impacts under Alternative 5a*

Impacts would be the same as described under Alternative 5.

Cumulative Impacts

Impacts would be the same as described under Alternative 1.

Riparian Community

Summary of Impacts under Alternative 5a

Impacts would be the same as described under Alternative 4.

Cumulative Impacts

Impacts would be the same as described under Alternative 4.

5b. VEGETATIVE COMMUNITIES (FOREST VEGETATION)

Forest vegetation includes old-growth coniferous forests, hardwoods, mountain shrubs, and juniper woodlands. These vegetative communities would be affected primarily by fire and fuels management, forest vegetation management (*see Glossary*), and forestry and woodland products management (*see Glossary*). Restrictions on management activities for the protection of other resources would affect the level, location, and effectiveness of forest vegetation management actions.

a. Indicators, Methodology and Assumptions

Forest Vegetation Indicators

Indicators are used to identify the level of impact. The indicators used for this impact analysis are:

- Emphasis placed on maintaining or restoring old-growth forest structure.
- Emphasis placed on maintaining or restoring hardwood and mountain shrub communities.
- Emphasis placed on juniper reduction to attain historic pre-fire suppression distribution.
- Reduction in Fire Regime Condition Class (FRCC; see Chapter 3, Table 3.33. FRCC Descriptions).

Forest Vegetation Assumptions

- In support of this RMP revision, the BLM recently completed an intensive, qualitative forest inventory. Forest and woodland acreage and ranges of proposed treatment acreage are reasonable estimates based on this new inventory data (see Chapter 3; Table 3.48. Results of Baker RMP Forest Inventory).
- The following are based on these estimates and extrapolations:

- At least 10 percent of the forested land base is in an old-growth stage of development.
- The extent and phases (I, II or III) of juniper woodland (*see Glossary*).
- The number of forest and woodland acres per FRCC.
- Forest vegetation treatments would reduce existing fuel hazards and corresponding FRCC ratings in treated stands a minimum of one level, but ideally to level I.
- The lack of hardwood and mountain shrub acreage compared to historic conditions and its continued decline is based on a comparison of historic to recent aerial photography and field observations.
- Budget and staffing level would be sufficient to achieve treatment goals.
- Where stated, ranges of treatment acreage were defined for analysis purposes and are based on a cumulative 10-year target. Actual acreage treated per decade would vary.
- Analysis is based on comparison to the No Action Alternative as written and amended.

Magnitude of Impacts to Forest Vegetation

This analysis defines levels of effects on forest vegetation or its management as follows:

Negligible: Forest vegetation, or its management, would not be appreciably affected by other resource management activities or the restrictions they impose.

Minor: Impacts to forest vegetation, or to management of forest vegetation, would be small but detectable.

Moderate: Impacts to forest vegetation would be readily apparent and mitigation measures would be necessary if the impacts were deemed adverse. Management of forest vegetation would be encumbered by the restrictions imposed by other programs and mitigation measures would be needed to comply with the restrictions.

Major: Impacts to forest vegetation would be obvious and there may not be sufficient measures available to mitigate adverse effects. Opportunity for forest vegetation management may be foregone due to restrictions imposed by other programs.

Short-term: Anticipated effects occur within 5 years of project implementation.

Long-term: Impacts generally occur after the first five years following implementation and persist for as many as 20 years (within the life of this RMP).

b. Impacts to Forest Vegetation

Impacts to Forest Vegetation (coniferous forests, hardwoods, mountain shrubs, and juniper woodlands) in the Planning Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetative Communities

- Wildlife
- Special Status Species
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Forest and Woodland Products
- Livestock Grazing
- ACECs

No Action Alternative

Impacts from Water Resources

The No Action Alternative would establish the minimum RMAs, or riparian buffers, as recommended by PACFISH for anadromous fish and as modified for bull trout. RMAs are intended to protect water quality and aquatic habitat by restricting surface and stream bank disturbance in order to reduce sediment inputs from erosion, and to a lesser extent, vegetation disturbance in order to retain shade so that water temperature will remain cooler. These RMAs would limit and, at times, exclude management of forest vegetation within their boundaries, as well as in areas that would require access (road construction or improvement of existing road) through an RMA. The required RMA boundaries and the acreage that could potentially be impacted are shown in Table 4-2.

RMA – No Action	Perennial fish-bearing (Category 1)	Perennial non-fish-bearing (Category 2)	Ponds, wetlands, lakes (Category 3)	Intermittent (Category 4)
Distance/feet per side	300	150	150	100/50
Acres per linear mile	36	18	18	12/6

The mesic areas that bound water bodies are typically the most productive sites within a landscape and are prone to overstocking by conifers and/or juniper trees. Thinning of conifers and removal of juniper trees with subsequent replacement by shrubs and hardwoods is often an objective of riparian area management; however, when an RMA is considered to be a “no entry zone” in order to avoid short-term, adverse impacts to water quality, the opportunity for this type of vegetation treatment is foregone, as are the potential long-term, beneficial impacts to water quality, aquatic habitat, riparian areas, and forest vegetation. Thus, while the overall, long-term impacts to forest vegetation would be minor, impacts to forest vegetation could be moderate and adverse within a localized project area.

Impacts from Soils Management

Soil protection measures under the No Action Alternative that prevent or limit soil compaction and displacement, such as by limiting road construction, the type of harvest system (i.e.,

equipment), and silvicultural prescription, would ensure that optimum growth conditions are maintained. In general, impacts on forest vegetation would be long-term, beneficial, and minor.

On the other hand, limiting the methods for forest vegetation management would also limit or exclude opportunities to improve the health and distribution of communities due to the cost or infeasibility of using another method. Adverse impacts would typically be minor to moderate and short-term, such as in the case of an insect epidemic that cannot be accessed for treatment. In some instances, adverse impacts could also be considered major and long-term if treatment were to be prevented for an epidemic obliterating the only old-growth conifer stand within a given watershed.

Impacts from Vegetative Communities

Wyoming Big Sagebrush Management

The BLM's management of Wyoming big sagebrush communities would not impact forest vegetation under the No Action Alternative.

Mountain Big Sagebrush Management

Within mountain big sagebrush communities, under the No Action Alternative the BLM would manage to achieve a late seral plant community in the Grande Ronde GU and a climax plant community in the Hunt Mountain Unit. This would only occur by suppressing all fires in these areas, which would likely result in the continued encroachment of juniper into these communities. The absence of wildfire is likely the most significant causal factor for the expansion of juniper woodlands on the landscape. As a result, this management strategy would have a moderate, long-term, adverse impact on juniper woodland management.

While achieving a late seral, or climax, plant structure in the Grande Ronde and Hunt Mountain areas would likely cause a proliferation of mountain shrubs on sites that are adapted to hosting these plant communities, these communities are generally going to occur in transition zones where the plant community is changing to coniferous forest. In the absence of fire, these communities would have an ever-increasing expansion of conifer trees, which would eventually out-compete the mountain shrubs. Thus, the initial impacts to mountain shrubs would be relatively moderate and long-term in a beneficial sense, but would eventually become a moderate, long-term, adverse impact as the shrubs are displaced by conifers.

Under the No Action Alternative, the BLM would attempt to maintain the remainder of the mountain big sagebrush communities in a mid-seral condition. An assumption must be made that some degree of prescribed burning and/or use of wildland fire, as well as some degree of mechanical treatments such as juniper cutting, would be utilized to maintain a mid-seral condition. In this scenario, the impacts to juniper woodland management would be long-term, minor to moderate, and beneficial, as juniper is kept in check and not allowed to expand its range. Impacts would be similar for hardwoods and mountain shrubs, which would experience

long-term, minor to moderate, beneficial impacts as fire rejuvenates these communities and reduces competition.

Riparian and Wetland Management

The only prescribed riparian and wetland management proposed under the No Action Alternative involves changing the season of use and/or reducing the amount of grazing, which would likely result in beneficial, long-term, minor impacts on hardwoods and mountain shrubs in riparian and wetland areas. If juniper has already become established in these areas prior to altering the grazing system, there would likely be either no impact, or a long-term, minor, adverse impact on juniper woodland management. Juniper trees are quite resilient and, once they are established, they cannot be replaced by some other form of vegetation by means of competition and plant succession, and thus must first be killed or they may continue to expand their range. However, a lush, vibrant riparian community may contain the existing juniper and prevent the propagation of any new individuals.

Coniferous Forest Management (Old Growth)

Under the No Action Alternative, the BLM would strive to establish and/or maintain healthy and diverse forests in all age classes and stocking levels with at least 10 percent of the acreage in well-distributed old-growth habitat. While forest stands containing all the required structural and compositional components required to be classified as old growth are in short supply, observations by BLM staff suggest that there is likely more than 10 percent of the current forested land base that would meet this criteria. Most of the old-growth forests that would be maintained under the No Action Alternative include those which are located in SMAs (e.g., WSAs, WSR corridors, ACECs) and/or areas that are inaccessible or otherwise unfeasible for logging. While impacts to this 10 percent of old-growth forests would be beneficial and long-term, management under the No Action Alternative would allow for commercial harvesting of all stands containing some old-growth components, targeting the big, old trees, and any existing old-growth forest that exceeds the 10 percent minimum. Adverse impacts to these old-growth forests would be major and long-term.

During the early 1990s there was a major paradigm shift in the management of the nation's public forests. Management of forests began to focus on restoring forest health and the retention of the remaining old-growth forest stands. This change in management philosophy was borne out of the realization that much of this forest type had vanished due to logging and wildfire and that old-growth forests are critical to the survival of certain wildlife species. This new paradigm was reinforced by the promulgation of supplemental national guidance (National Fire Plan, Healthy Forest Restoration Act, etc.) that directs the BLM to improve forest and rangeland health and reduce hazardous fuels. While the current Baker RMP (BLM 1989) direction focused on harvesting large, old-growth trees, the BLM's actual forest practices in the Decision Area have removed very few of them during the past 20 years. Management has not necessarily focused on restoration of old-growth forest; instead, much of the forest management during the past two decades has simply avoided old-growth stands and focused on thinning younger stands. Under

this scenario, impacts to old-growth forests have been beneficial, minor to moderate, and long-term.

Hardwood and Mountain Shrub Management

Under the No Action Alternative, no emphasis would be placed on addressing the declining populations of quaking aspen, mountain shrubs, and mountain mahogany. As a result, these plant communities would continue to experience a steady decline and thereby experience major, adverse, long-term impacts.

However, the same paradigm shift discussed above affected the BLM's management of hardwood and mountain shrub communities. Although the demise of these vegetation communities was due to different factors (e.g., primarily the lack of fire and grazing/browsing pressure), the importance of these communities has received more emphasis. Within the Decision Area, the BLM's management actions over the past two decades have been modified to focus on removing conifers and/or junipers from these communities when they adjacent to other forest management actions, and sometimes burning and/or fencing these areas to allow them to recover their vigor. While these types of treatments received more emphasis, they were often ancillary to the greater objective of conifer forest management, although some treatments have been done as stand-alone projects. The result has been beneficial, minor, long-term impacts to hardwood and mountain shrub management.

Juniper Woodland Management

The No Action Alternative proposes no management of juniper woodlands by the BLM. As a result, juniper would continue to occupy its historic range, as well as the substantial acreage where it has encroached and continues to expand on range and forestlands within the Decision Area. Impacts on juniper woodland management, which would be intended to reduce encroaching juniper to its pre-fire suppression distribution on the landscape, would be adverse, long-term, and major.

Again, due to the paradigm shift, BLM management of juniper woodlands has been a departure from the direction, or lack thereof, provided by the ROD for the current Baker RMP (BLM 1989). Subsequent supplemental national guidance, such as The National Fire Plan, Healthy Forest Restoration Act, and Rangeland Health, has directed the BLM to improve forest and rangeland health and reduce hazardous fuels. One of the objectives under this guidance is to eradicate juniper from areas where it has encroached. In keeping with this guidance, the BLM has treated approximately 900 acres of encroaching juniper per year within the Decision Area through cutting, masticating, and burning, and which in turn has had a beneficial, minor to moderate, long-term impact on juniper woodland management.

Impacts from Wildlife Management

The maintenance and enhancement of old-growth forest, hardwood, and mountain shrub stands and the reduction of juniper encroachment are all actions that improve wildlife habitat. Any proposed restrictions by the BLM for the benefit of wildlife would be considered a standard design feature for a forest vegetation management action within the Decision Area and would be considered during the planning phase of any treatment. While this may modify the planning of some treatments, it should not affect achievement of forest vegetation management goals and objectives.

The No Action Alternative prescribes the increase and enhancement of aspen forest types and emphasizes that the availability of palatable shrubs and thermal cover would be ensured. While the level of emphasis that these treatments would receive is not stated, it would minimally have a negligible to minor, long-term, beneficial impact on hardwoods and mountain shrubs. Such beneficial impacts, however, would not be adequate to counter the adverse impacts to aspens identified above under Impacts from Vegetative Communities: Hardwood and Mountain Shrub Management.

Impacts from the lack of addressing juniper would be the same as stated above under Impacts from Vegetative Communities: Juniper Woodland Management.

Impacts from Special Status Species

Modifying the BLM's actions to avoid impacts on listed or sensitive species or their habitat would likely alter forest vegetation management treatments within the Decision Area. In rare instances, this could preclude reaching management goals in some stands, such as maintaining or restoring old-growth forest structure and/or hardwood and mountain shrub coverage and reducing juniper that has encroached on other habitats. In other cases, such as for sage-grouse habitat management, the proposed management actions (e.g., additional emphasis placed on juniper woodland management to enhance sage-grouse habitat) would further enhance achieving forest vegetation management goals. Since special status species are found infrequently, restrictions or added emphasis on forest vegetation management would not occur on a regular basis. As a result, any adverse or beneficial impacts to forest vegetation resulting from modifications and/or restrictions would be project specific, minor to moderate, and relatively short-term.

Impacts from Fire and Fuels Management

Fire suppression and use of wildland fire are variables that would change each year based on the resource values at risk, proximity to private lands, and burning conditions. Due to this unpredictability, this analysis will focus on the BLM's planned fuels management, which falls within the realm of human control and predictability.

Under the No Action Alternative, restoring the place of fire in forested ecosystems and reducing fuels that pose a hazard of uncharacteristically severe, stand-replacing wildfire would provide long-term, beneficial impacts to forest vegetation. These BLM actions within the Decision Area would perpetuate old-growth forests by removing ladder fuels that are typically in the form of shade tolerant, understory conifers; perpetuate and expand the range of hardwoods and mountain shrubs by stimulating new growth; and reduce the acreage of juniper encroachment to benefit juniper woodland management.

Reducing FRCC under the No Action Alternative would also indicate an improvement in forest vegetation. A reduced FRCC would mean that species composition and stand density would be corrected, insect and disease activity would be reduced to endemic levels, forest and rangelands would be restored through removal of encroaching juniper, lands would be more resilient to wildfire, and the risk of uncharacteristic stand-replacing fire would be reduced or abated.

Since the No Action Alternative does not present a range of acres or treatments to be used by the BLM to manage hazardous fuels condition, the extent of impacts cannot be determined. It still can be assumed, however, that this alternative would have at least a minor, long-term, beneficial impact on forest vegetation.

Impacts from Visual Resources

Only VRM Class I and Class II assignments would affect the management of forest vegetation. All BLM forest vegetation management would be prohibited on public lands assigned to VRM Class I, which applies to protected, pristine areas such as designated wilderness, WSAs, and designated “wild” reaches of WSRs. Since no lands were placed under this VRM classification by the BLM under the No Action Alternative, there would be no impact to forest vegetation management.

However, since the ROD was issued for the current RMP (BLM 1989), 1932 acres of forest vegetation within the Decision Area were designated by the BLM as wilderness, WSAs, and wild reaches of WSR and thus were assigned and have been managed as VRM Class I. Since no management would be allowed in these areas, this has an adverse, major, long-term impact on forest vegetation management within these specific areas and minor to moderate impact overall.

The No Action Alternative would result in 33,879 acres of forested lands in the Decision Area being assigned by the BLM to VRM Class II, which would potentially restrict the scope of the BLM’s available forest vegetation management activities (e.g., logging, thinning or prescribed burning). Although VRM Class II does not prohibit forest management, BLM activities that involve the removal of most or all vegetation (e.g., heavy thinning to restore old-growth forest, overstory removal to restore hardwoods and mountain shrubs, and removal of encroaching juniper) would change the visual character of the landscape, and would thus be discouraged in VRM Class II areas. As a result, any forest vegetation that occurs within these areas may not be treated effectively due to visual quality management, with adverse impacts to forest vegetation potentially being moderate and long-term.

Impacts from Lands with Wilderness Characteristics

The No Action Alternative proposes no direction for the BLM's management of wilderness characteristics. There would thus be no impacts to forest vegetation.

Impacts from Forest and Woodland Products

The No Action Alternative would provide for 10 percent of the forested land base in the Decision Area to be maintained as old-growth forest and assumes that most of these stands would be located in WSAs, ACECs, and areas that are economically non-operable. All other old-growth stands, or stands having some old-growth components, would be released in order to be intensively managed by the BLM for a sustained yield of timber products. To achieve this alternative's allowable sale quantity (ASQ) of 24,000 MBF per decade, the largest, oldest trees in a forest management area would be selected for harvesting first. This would result in major, long-term, adverse impacts to the distribution and extent of existing and potential old-growth forest stands in the Decision Area.

However, the paradigm shift discussed under Impacts from Vegetative Communities: Coniferous Forest Management, has resulted in far less timber harvested by the BLM from the Decision Area during the past two decades (approximately 6,000 MBF per decade). Approximately 70 percent of this volume has resulted from salvage logging with the remaining 30 percent resulting from commercial thinning or other partial cut silvicultural systems. Very little of this volume has come from harvesting live, large, old-growth trees, although much of it has resulted from salvaging standing, dead old growth. Snag requirements were adhered to by the BLM and their logging contractors during salvage operations, and have contributed to future old-growth structure; thus, this management strategy has had a beneficial, minor to moderate, long-term impact on the distribution and extent of existing and potential old-growth forest stands in the Decision Area.

Where BLM timber harvests would occur in areas containing a hardwood or mountain shrub component, the No Action Alternative provides no emphasis on retaining, enhancing, or restoring these plant communities. Undoubtedly, these communities would receive some short-term benefit simply from the removal of competing conifers, but they would soon be outcompeted as newly established conifer plantations overtop and shade out these species. This would result in moderate, long-term, adverse impacts to the distribution and extent of hardwoods and mountain shrubs.

As indicated under Vegetative Communities: Hardwood and Mountain Shrub Management, more emphasis has been placed by the BLM on restoring these communities than originally prescribed by the No Action Alternative. As stated, in regard to forest and woodland products, this work was conducted in an ancillary fashion serving the greater objective of conifer forest management. The result has been beneficial, negligible to minor, long-term impacts to hardwood and mountain shrub management.

While the No Action Alternative does not specifically address juniper woodland management, it does refer to the management of 37,273 acres of woodlands for the sustained yield of posts, poles, and firewood. Assuming that woodlands does include juniper, the occasional, random harvest by the public of younger, straight, well-formed juniper trees for use as posts would result in a negligible, short-term, beneficial impact on the management of juniper woodlands.

As indicated under Vegetative Communities: Juniper Woodland Management, the BLM's management of juniper woodlands has been a departure from the direction, or lack thereof, provided by the ROD for the current Baker RMP (BLM 1989). Most juniper woodland management within the Decision Area has been conducted in the interest of reducing hazardous fuels or restoring forest and rangeland ecosystems, which has resulted in a small increase in the utilization of the cut juniper as firewood. In the past several years, national energy policy interest has begun to focus on renewable sources of energy. The concept of utilizing juniper biomass for the production of energy has received some local attention, but the prohibitive cost of hauling the material to a utilization facility has thus far made it unfeasible. Current forest and woodland products management of juniper has had a beneficial, negligible, long-term impact on juniper woodland management.

Impacts from Livestock Grazing

Under the No Action Alternative, livestock foraging or trampling on naturally occurring or planted trees could cause seedling mortality or growth deformity, resulting in minor, adverse, short-term impacts. In areas where BLM seedlings are planted for reforestation after a fire or treatment efforts, the burned or treated areas would be rested from grazing until site-specific rehabilitation objectives are achieved, which would reduce or eliminate such impacts in these areas.

Livestock grazing can also cause moderate, long-term, adverse impacts on forest vegetation by reducing grass and forb coverage, which reduces fine fuels and can interrupt the natural fire cycle. In conifer forests, this generally results in a proliferation of naturally regenerated seedlings, and potentially weeds, which increases inter-tree competition and reduces forest health. In hardwood forests, this generally results in a severe reduction of new suckers and an absence of stand renewal from fire. In juniper woodlands, it also can result in a proliferation of naturally regenerated seedlings, which promotes the cycle of juniper encroachment.

Impacts from ACECs

The management of forest vegetation by the BLM would be prohibited or restricted on approximately 5,210 forested acres in nine existing ACECs. Management would be prohibited in Joseph Creek (113 acres), Unity Bald Eagle (291 acres), Sheep Mountain (406 acres), and Homestead ACECs (1,529 acres), and restricted nearly to the point of being prohibited in the South Fork of the Walla Walla River ACEC (527 acres). Furthermore, it would be restricted to activities that enhance ACEC values in Grande Ronde River (771 acres), Keating Riparian (330 acres), Hunt Mountain (1,163 acres), and Oregon Trail ACECs (80 acres). Forest management

would be not applicable in the existing Powder River Canyon ACEC, as it has little or no forest vegetation.

Prohibiting forest vegetation management would eliminate the opportunity to retain, enhance, or restore these forest communities. Adverse impacts would be moderate to major on a localized basis (i.e., limited to the forested communities within the ACECs). Since the acreage of forest vegetation in the affected ACECs would be small relative to the remainder of forest vegetation in the Decision Area, overall adverse impacts would be minor.

Restricting forest vegetation management would limit opportunities, but could still allow for some beneficial management. While forest vegetation management would not be prohibited, the protection of scenic values could restrict any proposed activities, as described above in Impacts from Visual Resources. Impacts would be adverse, long-term, and range from moderate to major on a localized basis; however, since these areas are small relative to the remainder of forest vegetation in the Decision Area, impacts would be minor overall.

Alternative 1

Impacts Same as under the No Action Alternative

- Impacts from Water Resources
- Impacts from Soil Resources

Impacts from Vegetative Communities

Wyoming Big Sagebrush Management

Alternative 1 emphasizes enhancing wildlife habitat for sagebrush obligate species. This would include BLM management actions that restore hardwoods and mountain shrubs and decrease the extent of encroaching juniper in Wyoming big sagebrush communities. These actions would be proactive compared to the No Action Alternative and would have a moderate, long-term, beneficial impact on hardwoods and mountain shrubs, as well as on juniper woodland, management within the Decision Area.

Mountain Big Sagebrush Management

Alternative 1 emphasizes the BLM's use of fire in mountain big sagebrush communities within the Decision Area to provide for a landscape mosaic of sagebrush, grass, and forbs. Such activities would initially reduce the extent of juniper, and then keep it in check by not allowing it to expand its range. The impacts to juniper woodland management would be beneficial, long-term, and range from minor to moderate, depending on the number of acres burned. Fire rejuvenates most hardwoods and mountain shrub communities and reduces competition, which would allow these communities to expand their range and perpetuate themselves resulting in

beneficial impacts compared to the No Action Alternative, and that would be long-term and range from minor to moderate.

Riparian and Wetland Management

Under Alternative 1, the BLM would use aggressive restoration methods including planting hardwoods and shrubs, removing undesirable vegetation (juniper), and altering the grazing system. Unlike the No Action Alternative, this would result in a long-term, major, beneficial impact on hardwoods and shrubs as these plants are reestablished and managed to maintain their long-term viability. The impact to juniper woodland management would be long-term, minor to moderate, and beneficial as they are physically removed from this environment and their reestablishment precluded through proactive management.

Coniferous Forest Management (Old growth)

Under Alternative 1, the BLM proposes an aggressive active management approach toward maintaining existing old-growth stands and restoring stands with some latent old-growth structure (e.g., with large, old trees) into stands that could be classified as old growth. All available treatment methods, including conventional logging, low impact logging, pre-commercial thinning (PCT), and prescribed fire, would be considered for use. Compared to the No Action Alternative, which would only positively impact 10 percent of old-growth forests, management actions under Alternative 1 would have a major, beneficial, long-term impact on all old-growth forests within the Decision Area.

Hardwood and Mountain Shrub Management

Under Alternative 1, hardwoods and mountain shrubs within the Decision Area would be actively restored by the BLM in conjunction with nearby coniferous forest health treatments. Coniferous trees, excluding large, old individuals and juniper would all be cut within 100 feet of the stand boundary. These trees and any hardwood trees cut during restoration activities would be available for harvest for use as wood products, which would potentially provide an economic incentive for managing hardwood and mountain shrub communities. This incentive would help facilitate an aggressive restoration program and, compared to the No Action Alternative, would result in moderate, long-term, beneficial impacts to hardwoods and mountain shrubs.

Juniper Woodland Management

Alternative 1 prescribes an aggressive management approach by the BLM toward encroaching juniper woodlands within the Decision Area, including cutting, burning (both prescribed and use of wildland fire), or otherwise reducing encroaching juniper in all phases of development by a range of 5,000 to 20,000 acres per decade. At the higher rate, nearly all encroaching juniper in the Decision Area would likely be treated during the life of this plan. As a result, Alternative 1 would have a major, long-term, beneficial impact on juniper woodland management and the communities upon which juniper is encroaching compared to the No Action Alternative.

Impacts from Wildlife

Alternative 1 would require the BLM to retain a minimum of 30 percent canopy cover during forest treatments in conifer forests within the Decision Area. This should have no effect on old-growth Douglas-fir management because the minimum canopy cover needed for these stands to attain old-growth structure is 30 percent (USFS 1993).

Due to its wide range of climatic and geophysical growing conditions, there is no minimum percent of canopy cover described for old-growth ponderosa pine forests. Ponderosa pine can grow on very harsh sites and in perpetual drought-like conditions. This means that, in the lowest productivity conditions, a fully stocked stand can consist of as little as two to three larger trees per acre with a very sparse understory. A stocking rate this low is indicative of canopy cover in the range of 5 to 10 percent. On the other hand, a minimum 30 percent canopy cover would be appropriate for ponderosa pine stands of medium to high productivity. The minimum canopy cover requirement prescribed under Alternative 1 would have a moderate, long-term, adverse impact on the maintenance and restoration of low productivity, old-growth ponderosa pine stands, whereas under the No Action Alternative, there would be little, if any, impact to higher productivity, old growth, ponderosa pine stands.

Fifty acres per year of hardwoods and mountain shrubs would be maintained and restored. Since the No Action Alternative is vague regarding the level of this type of treatment, Alternative 1 is used as the baseline for analysis and it is assumed that this alternative would provide more benefit to hardwoods and mountain shrubs than the No Action Alternative. Treatment would be done in the manner described under Impacts from Vegetative Communities: Hardwood and Mountain Shrub Management. Impacts would be beneficial, long-term, and range from moderate to major.

The objective and management actions for Vegetative Communities: Juniper Woodlands would exceed the wildlife management actions for retaining mature juniper trees under all alternatives. The protection of juniper patches in treatment areas for hiding and thermal cover is common to all action alternatives as a design feature and would have negligible impact on all proposed juniper woodland management.

Impacts from Special Status Species

Impacts from the BLM's special status species management would be the same as described under the No Action Alternative, with the exception of impacts from goshawk management, which was not addressed under the No Action Alternative.

In the Planning Area, goshawks tend to nest in relatively undisturbed conifer forests, which often include existing old-growth stands, or stands with some old-growth structure. Depending on the health and condition of the stand, a 30-acre buffer of untreated forest would be established around the nest under Alternative 1. Establishing such a buffer would forego the opportunity to maintain or enhance old-growth stands and potentially have a major, long-term, adverse impact

on such stands compared to the No Action Alternative. Overall, adverse impacts on the management of old-growth forests within the Decision Area could range from minor to moderate and would be long-term.

In some cases, the declining health of the nest stand in question may outweigh the potential short-term displacement of goshawks, which would preclude the 30-acre buffer, allowing management of the stand to proceed. The tree actually containing the nest would not be disturbed and appropriate forest canopy cover would be retained to maintain or encourage the development of old-growth forest structure. This would only apply to unoccupied or satellite nest stands; occupied nest stands would not be treated. This option should have no impact on the management of old-growth forests.

Impacts from Fire and Fuels Management

Under Alternative 1, the BLM would utilize hazardous fuel reduction methods such as: prescribed fire, mechanical, chemical, or cultural fuels treatments and naturally ignited wildfires occurring outside of the WUI to achieve forest vegetation management objectives. These treatments would benefit forest vegetation communities within the Decision Area by reducing the FRCC of treated stands, while simultaneously improving forest health by reducing stocking and subsequently improving stand vigor in both conifer and hardwood/mountain shrub stands. These treatments would also reduce juniper stocking within the Decision Area, which would promote the recruitment of native grasses and shrubs, deter soil erosion, and improve the hydrologic function of treated areas. Beneficial impacts to forest vegetation management would be moderate and long-term. Although the treatment targets remain the same for all action alternatives, the fact that the No Action Alternative has no targets implies that the beneficial impacts to forest vegetation would be greater under all of the other action alternatives.

Impacts from Visual Resources

Alternative 1 would include 1,932 forested acres designated as wilderness, WSA, and wild reaches of WSR that would be assigned to VRM Class I. Forest vegetation management would be prohibited in these areas due to their special designation, which would have an adverse, major, long-term, impact on forest vegetation management within these specific areas and a minor to moderate, long-term, adverse impact within the Decision Area.

Impacts from VRM Class II would be the same as those described under the No Action Alternative, but, impacts would be more widespread as 12,793 more acres of forest vegetation within the Decision Area would be assigned to VRM Class II under Alternative 1.

Impacts from Lands with Wilderness Characteristics

Alternative 1 would restrict forest vegetation management that would be deemed as having long-term impacts on public lands within the Decision Area that have been identified as possessing wilderness characteristics. Proposed BLM forest vegetation management actions would be

evaluated on a case-by-case basis to determine if the action would have long-term impacts or otherwise degrade the existing wilderness characteristics. This restriction would likely make some of the key activities necessary for the effective management of forest vegetation unavailable and may curtail opportunities for restorative work in old-growth forests, hardwood, and mountain shrub communities, and juniper woodlands. On a project level, adverse impacts would be moderate and long-term, but due to the relatively few acres (approximately 883 acres of conifer forest) that would be affected, overall impacts within the Decision Area would be negligible.

Impacts from Forest and Woodland Products

Alternative 1 would sustain, enhance, and restore old-growth forests within the Decision Area while ensuring a reliable output of forest products. Existing old-growth forest stands would be perpetuated through BLM management actions to remove overcrowded understory trees and reduce fuels. Stands with some old-growth components would be enhanced through similar actions to expedite their structural development into true old-growth stands. Stands in the intermediate or early mature stages of structural development would be thinned to expedite the development of old-growth components. Beneficial impacts to the distribution and extent of both existing and potential old-growth forest stands on the landscape would be major and long-term compared to the No Action Alternative.

Forest products management would result in a high emphasis being placed on concurrent BLM hardwood and mountain shrub management within the Decision Area. Where management activities would occur in areas containing a hardwood or mountain shrub component, measures would be taken to enhance and restore these plant communities. With the exception of large, old conifers that predate the era of fire suppression, all competing conifers would be removed within 100 feet of the apparent boundaries of the hardwood and mountain shrub stands. This would allow these plant communities to develop in the absence of conifer competition. Alternative 1 would result in moderate, long-term, beneficial impacts to the distribution and extent of hardwoods and mountain shrubs compared to the No Action Alternative.

The future of the value of juniper as a woodland product is unclear, but there are indicators that suggest that it may become more commercially important. While Alternative 1 does not focus on the management of juniper woodlands for the production of wood fiber, juniper that has encroached in forest stands would be cut during all BLM forest product management activities within the Decision Area. This initial stand level activity, coupled with subsequent activities to maintain stand health and the harvesting of juniper posts and firewood, and would result in minor, long-term, beneficial impacts on the management of juniper woodlands compared to the No Action Alternative.

Impacts from Livestock Grazing

Under Alternative 1, the 200 acre decrease in acres authorized by the BLM for livestock grazing within the Decision Area is so small that impacts to forest vegetation would be the same as those described under the No Action Alternative.

Impacts from ACECs

Under Alternative 1, the BLM would no longer designate the Powder River or Unity Bald Eagle areas as ACECs. In addition, the Oregon side of the Grande Ronde River would no longer be designated as an ACEC, but the designation would still apply to the Washington side of the river. While this would remove the restrictions and/or prohibitions on forest vegetation management imposed by ACEC designation, the former Unity ACEC would continue to be managed under the restrictions imposed by the joint USFS/BLM Bald Eagle Management Plan (BEMP), while the Oregon side of the Grande Ronde River would be restricted under its WSR designation. Although it would still be restrictive, the BEMP would provide much more latitude for forest vegetation management than the current ACEC designation on approximately 291 forested acres in the Unity area. The majority of the Grande Ronde WSR is designated as Wild, which essentially prohibits forest vegetation management. The remaining acres, many of which have sparse forest cover, are designated as Recreational, which provides approximately the same latitude for forest vegetation management as the ACEC designation.

In the remaining existing ACECs, BLM forest vegetation management would be restricted to prescriptions that are consistent with ACEC values. While this would restrict forest vegetation management opportunities, compared to the No Action Alternative, it would allow for some level of management in all ACECs. Compared to the No Action Alternative, impacts to forest vegetation management would be moderate locally, and would potentially be adverse, long-term, and minor across the Decision Area.

Alternative 1 would also designate four new ACECs, three of which would be of no consequence as they have little, if any, forest vegetation. The proposed Denny Flat ACEC contains juniper woodland that would be managed on a case-by-case basis. However, the total acreage of woodland in this proposed ACEC is small and has primarily low (Phase I) stocking, so it is not likely a priority area for treatment, regardless of ACEC designation. Impacts from designating the Denny Flat ACEC would likely be negligible, long-term, and adverse to the overall goal of forest vegetation management.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Soil Resources
- Impacts from Lands with Wilderness Characteristics

Impacts Same as under Alternative 1

- Impacts from Special Status Species
- Impacts from Fire and Fuels Management

Impacts from Water Resources

Impacts under Alternative 2 would be the same as those described under the No Action Alternative; however, impacts would be less widespread because the RMAs would be smaller. As illustrated in Table 4-3, the reduction in RMA sizes would result in 33 to 67 percent fewer acres being restricted from forest vegetation management.

RMA	Perennial fish-bearing (Category 1)	Perennial non-fish-bearing (Category 2)	Ponds, wetlands, lakes (Category 3)	Intermittent (Category 4)
Distance/feet per side	300	100	50	50/25
Acres per linear mile	36	12	6	6/3
RMA acres in No Action	36	18	18	12/6
+/- (%) Change from No Action	0	-33%	-67%	-50%/-50%

Impacts from Vegetative Communities*Wyoming Big Sagebrush Management*

Impacts under Alternative 2 would be essentially the same as those described under Alternative 1, with the exception that less emphasis would be placed on restoring hardwoods and mountain shrubs within the Decision Area. This would reduce the beneficial, long-term impacts to mountain shrubs from moderate to minor compared to the No Action Alternative.

Mountain Big Sagebrush Management

Impacts would be similar to those described under Alternative 1, with the exception that the impacts would likely be on a larger landscape scale as Alternative 2 would take a more aggressive approach toward increasing livestock forage within the Decision Area by reducing sagebrush cover with fire, which would have the collateral effect of reducing more juniper cover. This would result in long-term, moderate, beneficial impacts to mountain shrub communities and juniper management compared to the No Action Alternative.

Riparian and Wetland Management

Impacts would be the same as those described under Alternative 1.

Coniferous Forest Management (Old growth)

Under Alternative 2, the minimum amount of old-growth stands required to meet the habitat needs of old-growth dependent wildlife species would be retained within the Decision Area. Any old-growth stands, or stands with some old-growth structure, that are in excess of these requirements would be managed by the BLM for the maximum sustained yield of timber (with the exception of stands in protected areas such as WSAs, ACECs, etc...). This approach could result in less old-growth acreage being maintained than the 10 percent minimum under the No Action Alternative. Adverse impacts to old-growth forests would be major and long-term compared to the No Action Alternative.

Hardwood and Mountain Shrub Management

Under Alternative 2 the BLM would emphasize hardwood and mountain shrub restoration in stands that would result in the harvest of merchantable timber and other forest products. Management would give the highest priority to the most lucrative stands within the Decision Area. Restoration would be secondary to commodity production and the result would be a less aggressive restoration approach than described under Alternative 1. Beneficial impacts to these communities would be minor to moderate and long-term compared to the No Action Alternative.

Juniper Woodland Management

With the exception of the No Action Alternative, Alternative 2 would place the least emphasis on juniper woodland management within the Decision Area unless an economically viable market for juniper was found, or the removal of juniper would increase forage value. Since there is presently no economically viable market for juniper and it is uncertain whether a market will ever develop, it is assumed that juniper woodland management by the BLM would primarily occur to improve forage value, which would likely result in only a small percentage of existing woodlands receiving treatment. In the absence of an aggressive management approach, any such treated woodland would likely be encroached upon again by untreated, neighboring juniper. Therefore, the beneficial impacts to juniper woodland management would only be minor and short-term.

Impacts from Wildlife

Alternative 2 would require a minimum of 20 percent canopy cover be retained during BLM forest treatment in conifer forests throughout the Decision Area. As stated in Alternative 1, the minimum canopy cover needed to attain old-growth, Douglas-fir structure is 30 percent (USFS 1993). Since the 20 percent target under this alternative is a minimum, retaining more canopy cover (e.g. 30 percent) during forest treatments would be acceptable and would result in the same impacts as described for Douglas-fir old-growth in Alternative 1. This alternative would have the least impact on low productivity, old-growth ponderosa pine management, but it would still have a minor to moderate, long-term, adverse impact compared to the No Action Alternative

because the appropriate canopy cover percentage for the lowest productivity, old-growth, ponderosa pine stands is in the range of five to ten percent.

Alternative 2 prescribes no management of hardwoods and mountain shrubs. As a result, the adverse impacts associated with this alternative would be the greatest of all alternatives.

Impacts would be the same as those described under Alternative 1 for western juniper habitat management for wildlife.

Impacts from Visual Resources

Impacts and forest vegetation acreage affected from VRM Class I would be the same as identified under Alternative 1. Impacts from VRM Class II would be the same as those described under the No Action Alternative, but they would be less widespread as 17,519 fewer acres of forest vegetation would be assigned to VRM Class II.

Impacts from Forest and Woodland Products

The impacts to old-growth forests within the Decision Area under Alternative 2 that result from BLM forest products management would be very similar to those described under the No Action Alternative. The main difference would be that since Alternative 2 provides for a PSQ range of 10,000 to 25,000 MBF per decade, some years could potentially have a lesser impact on old-growth forests than the “hard target” ASQ of 24,000 MBF per decade assigned to the No Action Alternative.

Alternative 2 would place the least emphasis of all the action alternatives on the BLM’s hardwood and mountain shrub management. Hardwood and mountain shrub treatments within the Decision Area would be undertaken based on the ability to harvest forest products concurrently from the hardwood/shrub treatment area. All merchantable conifers, regardless of size or age, would be harvested and removed. In most cases, unless it was deemed economically unfeasible, sub-merchantable conifers would also be cut. Unlike the minimum treatment parameter of 100 feet beyond apparent stand boundary described under Alternative 1, there would be no treatment parameters. The objective of harvesting cut material would likely preclude treating stands without road access or stands having marginal commercial value. Alternative 2 would result in minor, long-term, beneficial impacts to the distribution and extent of hardwoods and mountain shrubs compared to the No Action Alternative, but would be less than the moderate, beneficial impacts identified under Alternative 1.

The impacts to juniper woodlands under Alternative 2 that result from forest products management would be very similar to those described for Alternative 1.

Impacts from Livestock Grazing

Alternative 2 would increase the number of acres authorized by the BLM for livestock grazing within the Decision Area by 7,700. It is probable that some of this acreage would consist of forest vegetation, although it would likely not be a large percentage. This would result in a negligible increase to the impacts caused by livestock grazing within the Decision Area compared to the No Action Alternative.

Impacts from ACECs

As under Alternative 1, forest vegetation acres currently in Unity Bald Eagle ACEC would no longer be within the ACEC designation. In addition, forest vegetation acres currently in Hunt Mountain ACEC would no longer be within the ACEC designation under Alternative 2. This would decrease restricted forest vegetation acreage by approximately 1,163 acres, which would further reduce the adverse impacts to forest vegetation management in the areas that were identified under the No Action Alternative. While the ACEC status would also be removed from the Oregon side of the Grande Ronde River as in Alternative 1, the prohibitions and restrictions resulting from WSR designation would still make forest vegetation management in this area unlikely. Compared to the No Action Alternative, impacts to forest vegetation management would be minor to moderate locally and would potentially be adverse, long-term, and minor within the Decision Area.

The negligible impacts identified under Alternative 1 for the designation of new ACECs would not be applicable to Alternative 2 as no new ACECs would be designated.

Alternative 3

Impacts Same as under the No Action Alternative

- Impacts from Soil Resources

Impacts Same as under Alternative 1

- Impacts from Special Status Species
- Impacts from Fire and Fuels Management
- Lands with Wilderness Characteristics
- Forest and Woodland Products

Impacts Same as under Alternative 2

- Impacts from Water Resources

Impacts from Vegetative Communities*Wyoming Big Sagebrush Management, Mountain Big Sagebrush Management, and Riparian and Wetland Management*

Impacts would be the same as those described under Alternative 1.

Coniferous Forest Management (Old growth)

Overall impacts would be essentially the same as those described under Alternative 1, with the exception that emphasizing old-growth maintenance and restoration in popular recreation areas within the Decision Area would influence the location of impacts under Alternative 3.

Hardwood and Mountain Shrub Management

The impacts under Alternative 3 would be similar to those described under Alternative 1, with the exception that Alternative 3 emphasizes restoring hardwoods and mountain shrubs where they occur in popular recreation areas throughout the Decision Area. While harvesting any cut material would still be an incentive under this alternative, the lack of having the restoration tied to a nearby coniferous forest treatment may preclude the economic feasibility of utilizing the wood as the cost associated with moving in logging equipment may be prohibitive for such a small volume of wood. The absence of economic feasibility could result in less restoration and, as a result, reduce the magnitude of beneficial effects to these communities compared to Alternative 1. However, the impacts would still be beneficial, long-term, and minor to moderate compared to the No Action Alternative.

Juniper Woodland Management

Impacts would be the same as those described under Alternative 1.

Impacts from Wildlife

Impacts would be the same as those described under Alternative 1 for canopy cover retention in conifer forest treatments.

Under Alternative 3 the BLM would maintain and restore 25 acres per year of hardwoods and mountain shrubs within the Decision Area, which is half the amount prescribed under Alternative 1, thereby reducing the long-term, beneficial impacts to moderate compared to the No Action Alternative.

Impacts would be the same as those described under Alternative 1 for western juniper habitat management.

Impacts from Visual Resources

Impacts and acreage affected from VRM Class I would be the same as identified under Alternative 1. Impacts from VRM Class II would be the same as those described under the No Action Alternative; although impacts would be more widespread within the Decision Area as 3638 more acres of forest vegetation would be assigned to VRM Class II.

Impacts from Livestock Grazing

Alternative 3 would reduce the number of acres authorized by the BLM for livestock grazing within the Decision Area by 8,345, which would likely include a small number of acres comprised of forest vegetation. This would result in a negligible decrease to the long-term, adverse impacts caused by livestock grazing compared to the No Action Alternative.

Impacts from ACECs

Under Alternative 3, the BLM would maintain ACEC status on the ten areas currently designated under the No Action Alternative. In addition, two new ACECs (Magpie Peak and Snake River Goldenweed) would be designated. However, since they lack forest vegetation, they would be of no consequence to the forest vegetation management program. Consistent with the other four action alternatives, Alternative 3 would restrict BLM forest vegetation management to prescriptions that are consistent with ACEC values. Compared to the No Action Alternative, impacts to forest vegetation management would be moderate locally, and would potentially be adverse, long-term, and minor across the Decision Area.

*Alternative 4*Impacts Same as Alternative 1

- Impacts from Fire and Fuels Management
- Lands with Wilderness Characteristics

Impacts from Water Resources

Impacts under Alternative 4 would be the same as those described under the No Action Alternative, except that impacts would be more widespread throughout the Decision Area because the RMAs would be larger. As identified in Table 4-4, the increase in RMA size would result in 25 to 34 percent more acres being restricted from BLM forest vegetation management.

RMA	Perennial fish-bearing (Category 1)	Perennial non-fish-bearing (Category 2)	Ponds, wetlands, lakes (Category 3)	Intermittent (Category 4)
Distance/feet per side	300	200	150	150/75
Acres per linear mile	36	24	18	18/9

RMA	Perennial fish-bearing (Category 1)	Perennial non-fish-bearing (Category 2)	Ponds, wetlands, lakes (Category 3)	Intermittent (Category 4)
RMA acres in No Action	36	18	18	12/6
+/- (%) Change from No Action	0	+25%	0	+34%/+34%

Impacts from Soil Resources

Among the alternatives, Alternative 4 proposes to treat the largest amount of acreage within the Decision Area during BLM forest vegetation management activities, which means that more acres would have to comply with soil protection measures. Since these measures would only restrict, and not prohibit, forest vegetation management activities, impacts to forest vegetation should be similar to those described under Alternative 1.

Impacts from Vegetative Communities

Wyoming Big Sagebrush Management

Impacts under Alternative 4 would be essentially the same as those described under Alternative 1, with the exception that more emphasis would be placed by the BLM on restoring hardwoods and mountain shrubs within the Decision Area, resulting in moderate to major, long-term, beneficial impacts compared to the No Action Alternative.

Mountain Big Sagebrush Management and Riparian and Wetland Management

Impacts would be the same as those described under Alternative 1.

Coniferous Forest Management (Old growth)

Alternative 4 would place the highest emphasis by the BLM on old-growth forests within the Decision Area due to its focus on aggressive protection and restoration measures for native vegetation, biodiversity, and connectivity. The impacts would be similar to those described under Alternative 1. However, impacts would likely be more widespread.

Hardwood and Mountain Shrub Management

Similar to the discussion on old-growth forests above, Alternative 4 would place the highest emphasis by the BLM on protecting and restoring hardwood and mountain shrub communities. Economic viability would not be of much concern for hardwood/mountain shrub management under Alternative 4 as the impetus for restoration would be to benefit overall ecosystem and landscape health throughout the Decision Area. As a result, other multiple funding sources would be provided for completing the work. Alternative 4 would potentially have the greatest,

long-term, beneficial impact on hardwood and mountain shrub communities among all of the alternatives, with overall impacts ranging from moderate to major.

Juniper Woodland Management

Impacts would be similar to those described under Alternative 1, albeit slightly more intensive as a larger acreage range would be treated by the BLM (15,000 to 30,000 compared to 5,000 to 20,000 acres per decade), which would further expedite treating all encroaching juniper within the Decision Area. Therefore, Alternative 4 would have the greatest, long-term, beneficial impacts to juniper woodland management of all the alternatives.

Impacts from Wildlife

Alternative 4 would require a minimum of 35 percent canopy cover be retained during BLM forest treatments in conifer forests within the Decision Area and would be the only alternative which could have a minor, adverse impact on old-growth Douglas-fir management. In addition, Alternative 4 would have the greatest adverse impact of all alternatives on low productivity, old-growth ponderosa pine management, and could have a minor, adverse impact on stands of medium productivity. All such impacts would be long-term.

Impacts would be the same as those described under Alternative 1 for hardwood and mountain shrub management and western juniper habitat management.

Impacts from Special Status Species

Impacts from BLM special status species management within the Decision Area would be the same as described under the No Action Alternative, with the exception of impacts from goshawk management. Under Alternative 4, an 80-acre buffer of untreated forest would need to be established around a goshawk nest, regardless of whether it is occupied or not. Considering that many existing old-growth stands and stands with some old-growth structure are not even 80-acres in size, which means the buffer would include the entire stand, this alternative would have a major, long-term, adverse impact on old-growth stands where goshawk nests are present. Overall, impacts on the management of old-growth forests would be adverse, moderate to major, and long-term.

Impacts from Visual Resources

Impacts and acreage affected from VRM Class I would be the same as identified under Alternative 1. Impacts from VRM Class II would be the same as those described under the No Action Alternative, but they would be more widespread as 17,453 more acres of forest vegetation would be assigned to VRM Class II.

Impacts from Forest and Woodland Products

Alternative 4 would treat the most forested acreage by the BLM within the Decision Area among all the alternatives. The increase in acreage would equate to more opportunities for maintaining and restoring old-growth forests and forests with some old-growth components. Since this alternative places the highest emphasis on restoration of ecosystems and natural processes, it would also involve thinning more stands in the intermediate or early mature stages of structural development, expediting their development of old-growth components. Impacts to the distribution and extent of existing and potential old-growth forests would be major, long-term, and the most beneficial among all the alternatives.

Since the restoration and maintenance of hardwoods and mountain shrubs are not tied to forest and woodland products management under Alternative 4, there would be no impacts.

Alternative 4 has the greatest potential for BLM management actions to impact juniper woodlands among the alternatives. The increased acreage to be treated under forest and woodland products would likely yield the greatest acreage of incidental juniper treatment within the Decision Area. However, when compared to the No Action Alternative, the increased acreage would not be large enough to yield much more than the minor, long-term, beneficial impacts described under Alternative 1.

Impacts from Livestock Grazing

Alternative 4 would reduce the number of acres authorized by the BLM for livestock grazing within the Decision Area by 54,250. Due to the size of this decrease, it is far more likely that more forest vegetation would be affected. This would result in a minor to moderate decrease to the long-term, adverse impacts resulting from livestock grazing compared to the No Action Alternative.

Impacts from ACECs

Under Alternative 4 the BLM would maintain ACEC status on the ten areas currently designated under the No Action Alternative and add the two new areas identified under Alternative 3. An additional two areas: Virtue Flat Sage-grouse Habitat and Denny Flat, the latter of which was identified in Alternative 1, would also be designated as ACECs. Virtue Flat and Denny Flat both have very little forest vegetation, and as noted for Denny Flat in Alternative 1, the restrictions on forest vegetation management would be of negligible consequence. Therefore, compared to the No Action Alternative, impacts to forest vegetation management would be similar to Alternative 3 (locally moderate, but adverse, long-term, and minor across the Decision Area).

*Alternative 5*Impacts Same as under the No Action Alternative

- Impacts from Special Status Species

Impacts Same as under Alternative 1

- Impacts from Fire and Fuels Management
- Lands with Wilderness Characteristics

Impacts Same as under Alternative 4

- Impacts from Water Resources
- Impacts from Visual Resources
- ACECs

Impacts from Soil Resources

Since Alternative 5 would require no surface disturbance (mechanized entry), there would be no impacts to forest vegetation or its management within the Decision Area resulting from BLM soils management measures.

Impacts from Vegetative Communities*Wyoming Big Sagebrush Management*

Impacts would be the same as those described under Alternative 4.

Mountain Big Sagebrush Management and Riparian and Wetland Management

Impacts would be the same as those described under Alternative 1.

Coniferous Forest Management (Old growth)

Under Alternative 5, only PCT and/or prescribed fire would be used by the BLM for old-growth forest maintenance and restoration within the Decision Area. While some benefit to forest health and old-growth structure would be realized with these treatments, the inability to do any mid- or general canopy thinning would mean that these stands would remain overstocked and more susceptible to insects, diseases, and stand-replacing fires. Therefore, Alternative 5 would not be nearly as effective in protecting old-growth forests as Alternative 1, with beneficial impacts being reduced to minor in the long term compared to the No Action Alternative.

Hardwood and Mountain Shrub Management

Alternative 5 would favor natural forces as the primary agent affecting hardwoods and mountain shrubs within the Decision Area. Active management by the BLM would not be precluded, but it would also not be emphasized. Where active management would be employed, no surface disturbing activity would be allowed; therefore, any material cut could not be harvested and would be left on site, which would preclude the economic incentive for treatment. As a result, this alternative would potentially provide the least beneficial impact to hardwoods and mountain shrubs among the action alternatives, but would still provide negligible to minor, long-term, beneficial impacts compared to the No Action Alternative.

Juniper Woodland Management

Alternative 5 would only prescribe active management by the BLM of juniper woodlands where they are encroaching on riparian and/or Wyoming big sagebrush communities (approximately 6,950 acres within the Decision Area). Active management would occur only in Phase I and II stands (approximately 5,980 acres), and only non-ground-disturbing management treatments would be used. While this would still provide some benefit to juniper woodland management, the acreage treated would be limited, and the densest, most well-established stands (Phase III) would likely remain untouched. With the absence of any large, widespread wildfires in the juniper woodlands, or the onslaught of a currently unknown insect or disease infestation, juniper would only have a slight reduction from its present acreage and would likely continue to encroach on adjacent lands. While this approach would be more proactive than the No Action Alternative, the long-term, beneficial impacts would be minor to moderate on a local scale, but would be negligible to minor on juniper woodland management overall.

Impacts from Wildlife

Impacts would be the same as those described under Alternative 1 for canopy cover retention in conifer forest treatments.

Under Alternative 5, the BLM would maintain and restore 35 acres per year of hardwoods and mountain shrubs within the Decision Area, which is less than the amount prescribed under Alternatives 1 and 4, but more than under Alternative 3. Beneficial impacts would be moderate and long-term compared to the No Action Alternative.

Impacts would be the same as those described under Alternative 1 for western juniper habitat management.

Impacts from Forest and Woodland Products

Under Alternative 5 the BLM would treat the fewest number of acres within the Decision Area under forest and woodland products management. In fact, this heading is somewhat of a misnomer since this alternative precludes the commercial harvest of forest products. While

cutting would still be prescribed, there would be no commercial harvest of cut material (however, personal use Special Forest Products [SFPs] harvest; i.e., firewood would still be permitted) and no cutting of live trees greater than eight inches measured at diameter-breast-height (dbh). This would limit the benefit that old-growth stands could incur from active management because stands would not be thinned to a level that promotes vigorous growth and larger, later-seral, shade tolerant tree species could not be removed. Any beneficial impacts to old-growth forests would likely be minor and short-term and would ultimately result in moderate, long-term, adverse impacts compared to the No Action Alternative.

The restoration and maintenance of hardwoods and mountain shrubs are not tied to forest and woodland products management under Alternative 5. As a result, there would be no impacts.

Juniper woodland management by the BLM is only proposed under Alternative 5 where junipers are encroaching on riparian or Wyoming big sagebrush communities within the Decision Area, resulting in negligible to minor, long-term, beneficial impacts to juniper woodland management compared to the No Action Alternative.

Impacts from Livestock Grazing

Under Alternative 5 the BLM would reduce the number of acres authorized for livestock grazing within the Decision Area by 124,595. This equates to approximately 32 percent of the lands currently authorized for grazing within the Decision Area, which would beneficially affect the most substantial acreage of forest vegetation of any of the alternatives. This would result in a moderate to major decrease in the impacts caused by livestock grazing compared to the No Action Alternative.

Under Alternative 5a the BLM would exclude all livestock grazing within the Decision Area, which would result in major, long-term, beneficial impacts on forest vegetation management compared to the No Action Alternative.

c. Cumulative Impacts

Cumulative impacts are defined as the impact on the environment that 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 actions.

Timeframe for Analysis

The timeframe for this analysis, as it pertains to forest vegetation, will encompass the period that the BLM has been affecting the forestland under its management (approximately 60 years) and for the next 20 years, which is the presumed life of this RMP.

Geographic Scope

The preponderance of forest vegetation within the Planning Area is managed by the USFS, with private ownership being the next largest manager, and the BLM managing a small fraction of the acreage compared to these first two entities. While management on forested lands under other jurisdictions would have an effect on the overall composition and structure of the forested landscape within the Planning Area, only assumptions can be made as to how these lands would be managed in the future. Additionally, management actions on forestlands under other jurisdictions would generally have little effect on the forest vegetation managed by the BLM. Therefore, while there is a description of forest management on private lands within the Planning Area below, the geographic scope for most of this analysis will refer to the Decision Area.

No Action Alternative

While there were a number of past management actions that affected forest vegetation, the primary agents were fire suppression and logging. These past impacts were borne out of a management strategy that focused on timber production and the accompanying conversion of “stagnating,” old-growth forests into productive young forests. This strategy of maximizing commodity value resulted in converting most, if not all, privately owned old-growth forest into younger stands, as well as many of the public forests. To ensure that this commodity value was recouped, forests were “protected” from fire to ensure that their commodity value as timber was not lost. This policy of fire suppression removed this natural agent of ecosystem balance from forests and further contributed to altering the structure and composition of conifer forests across the landscape. These actions have altered the historic range of species composition, structure, and distribution of commercially important conifer forest vegetation on the landscape.

The structure and composition of vegetation communities comprised of hardwoods, mountain shrubs, and sagebrush/grass were also heavily affected by past management actions. The primary agents responsible for this change were fire suppression and livestock grazing. The exclusion of fire from forest and rangeland ecosystems allowed juniper to expand beyond its historic range and occupy, or encroach upon, many thousands of acres that were historically hardwood, mountain shrub, and sagebrush/grass communities. Livestock grazing further exacerbated this encroachment. Livestock grazing reduced the amount of plant cover in sagebrush/grass communities, which reduced the amount of inter-plant competition for encroaching juniper. Grazing and/or browsing by livestock and big game also reduced the success of hardwood and mountain shrub regeneration allowing encroachment by juniper and other conifers on these communities. These actions have resulted in a large expansion of juniper woodland and a significant decline in hardwoods and mountain shrubs on the landscape.

The approach currently taken by federal land managers (i.e., USFS and BLM) in managing forest vegetation is a major departure from past management that focused on fire suppression, timber production, and the accompanying conversion of stagnating old-growth forests into productive young forests. Most management actions today focus on restoration of natural processes, including mechanically restoring structure and species composition, reintroducing fire into fire-

adapted ecosystems, and removing encroaching vegetation such as juniper so that displaced vegetation can reclaim its place on the landscape. While some private landowners are making great strides at removing encroaching juniper, most private owners of timberland continue to manage for the primary goal of producing timber. A recent development in some private forest management involves clearing the land of commercially valuable timber and then subdividing and selling the land for real estate development. In these instances, the forestland is converted into home sites and taken out of the commercial forest base.

The most likely role of public agencies in the reasonably foreseeable future would be to continue with restorative management of forest vegetation communities. Future public land management would likely focus on restoring or protecting old-growth forest structure, increasing the distribution of hardwoods and mountain shrubs, and decreasing the amount of western juniper on the landscape. This would be accomplished through management actions that modify logging and grazing practices, restore the place of fire in fire-adapted ecosystems, and eradicate juniper using mechanical, cultural, prescribed fire, and use of wildland fire.

The future management of forest vegetation communities on private land is less clear. It would be a reasonable assumption that many private landowners would continue to manage conifer forests for maximum commodity value or commercial gain. Whether the management is for continued commercial timber production, or the land is subdivided and sold for development, it is safe to assume that this acreage would not be used for the restoration of old-growth forest. Some private landowners have shown an interest in restoring hardwoods and mountain shrubs, and in reducing the acreage of encroaching juniper, but the amount of this activity that would occur on private lands in the future is impossible to predict.

The No Action Alternative would either maintain the status quo, or slightly reduce the acreage of old-growth forests within the Decision Area. While current BLM management has focused on thinning from below, which retains large trees and potentially contributes to gaining old-growth forest structure in the future, the only requirement is to maintain ten percent of the forestland base as old-growth forest. The No Action Alternative would continue to implement an unspecified amount of hardwood and mountain shrub restoration, as well as an unspecified amount of juniper encroachment reduction. Therefore, the cumulative impact of the No Action Alternative would likely result in an improvement of the structure, composition and distribution of forest vegetation within the Decision Area.

Alternative 1

Alternative 1 emphasizes the BLM's protection and restoration of old-growth forest, hardwoods, and mountain shrubs, and establishes a range of 5,000 to 20,000 acres per decade for the reduction or eradication of encroaching juniper. As stated under the No Action Alternative, restorative management would likely continue in other public forests for the foreseeable future, while private forests would likely continue to be managed for the greatest economic gain. Since an emphasis for the BLM's restorative forest vegetation treatment is established under Alternative 1, and these treatments would be implemented in only a haphazard fashion under the

No Action Alternative, the beneficial, long-term, cumulative impacts of Alternative 1 would result in a greater improvement of the structure, composition, and distribution of forest vegetation within the Decision Area than under the No Action Alternative.

Alternative 2

Alternative 2 would potentially place the greatest emphasis by the BLM on the production of timber and forest products within the Decision Area and would retain the minimum amount of old growth necessary to meet the habitat needs of old-growth dependant wildlife species. This could result in fewer acres of old-growth retention than described under the No Action Alternative. Restoration of hardwoods and mountain shrubs would be secondary to commodity production and the result would be a less aggressive restoration approach than described under Alternative 1. The reduction of juniper encroachment would only occur to recoup commodity value. Since there presently is little commodity value placed on juniper wood, and it is not anticipated that the wood will become much more valuable in the near future, juniper management would likely only occur to improve forage quantity and quality. Coupled with the lack of these types of treatments on private forest lands, the cumulative result would have the least beneficial effect on forest vegetation within the Planning Area. Thus, the beneficial, cumulative impacts to forest vegetation resulting from Alternative 2 would be less than those described under the No Action Alternative.

Alternative 3

The cumulative impacts under Alternative 3 would be the same as those described for Alternative 1.

Alternative 4

Alternative 4 would place the highest emphasis of all alternatives on the BLM's protection and restoration of old-growth forest, hardwoods, and mountain shrubs and would propose treating the largest decadal range (15,000 to 30,000 acres) of encroaching juniper. Compared to the No Action Alternative, this alternative would have the greatest beneficial, cumulative impacts to forest vegetation communities within the Decision Area.

Alternative 5

Under Alternative 5 the BLM would take a less active, and at times a passive, approach toward managing forest vegetation communities within the Decision Area. In many cases, the lack of an active restoration approach would leave nature to take its course. However, with the current departure from the historic range of forest vegetation, it is likely that the only way nature would restore these communities would be through wiping the slate clean with insect infestations and uncharacteristic stand-replacing fires and starting over again. If an insect epidemic became established on BLM managed forests, the lack of treatment under this alternative could allow the infestation to spread to private and other public forests. This would be an unsatisfactory

consequence for most resource values and result in the higher adverse, cumulative impacts to forest vegetation communities compared to the No Action Alternative.

6a. INVASIVE SPECIES (INVASIVE PLANTS AND NOXIOUS WEEDS)

This section analyzes the beneficial and adverse effects on the management of invasive plants and noxious weeds as a result of implementing proposed management actions under the various alternatives. The factor that most differentiates one alternative from another in terms of the potential to increase or decrease terrestrial weed invasions is the degree to which areas are open to ground-disturbing activities. In aquatic systems, the potential to increase or decrease weed invasions is the degree to which areas are open to activities that would be likely to introduce aquatic weeds. Overall, any action to protect or restore natural function, if successful, would have a long-term, beneficial effect on invasive plants and noxious weeds, because properly functioning diverse plant communities would be more resistant to weed invasion and establishment (DiTomaso 2000).

Weeds are most likely to thrive in disturbed areas and would continue to be introduced and spread by natural means such as wind, water, and wildlife. More pertinent to this analysis are means by which weeds are spread related to the management actions, including livestock grazing, timber harvest, fuels reduction activities, prescribed fire, travel off road, and recreation activities. All of these activities have: 1) the potential to create ground disturbance, which is a major factor in allowing weeds to establish, and 2) the potential to introduce weeds. Any such projects and activities would be a priority for monitoring and treatment of weeds should they appear.

a. Indicators, Methods, and Assumptions

Invasive Plants and Noxious Weeds Indicators

Indicators are used to identify the level of impact. For invasive plants and noxious weeds, the indicators used are the potential for increases or decreases in existing populations, the potential for introduction and spread of new infestations, which is related to the degree to which areas are open to ground-disturbing activities, and the potential for introduction. New infestations would be defined as occurring either by the introduction of a species new to the Decision Area or a species new to a particular part of the Decision Area where the undesirable plant had not previously been known to occur.

Invasive Plants and Noxious Weeds Assumptions

The analysis below focuses on explaining how existing or proposed management actions may contribute to the introduction and/or spread of invasive plants and noxious weeds. This analysis is based on the following body of assumptions:

- The management of invasive plants and noxious weeds would take the same approach for all alternatives. Weed sites would be evaluated for treatment method and priority for treatment based on their location, species, potential to spread, and effectiveness of available treatment options. It is expected that priority areas would change over time as weeds are controlled on one site but expanding on another.
- The potential for the expansion of existing infestations and the introduction and establishment of new infestations would correspond to the amount of disturbance on the landscape, and the level of opportunities for introduction which would vary among the alternatives. It is recognized that impacts might be major on a site-specific scale but would be minor or even negligible when considered Decision Area wide.
- Infestations often follow travel routes, which make roadsides, trails, and waterways prime habitat for weeds, and vehicles and boats the prime vectors for spread.
- Invasive plants and noxious weeds would continue to be introduced and spread as a result of ongoing vehicle and boat traffic in and out of the Decision Area, recreational activities, wildlife and livestock movements, and surface disturbing activities.
- Invasive plants and noxious weeds would continue to expand into native plant communities, and disturbances to these communities, both natural and caused by humans, would expand opportunities for introduction and spread.
- The Baker FO would continue to participate in Cooperative Weed Management Areas, ensuring that cooperative weed control efforts are carried out in coordination with other public agencies and private landowners.
- The total control of the spread of invasive plants and noxious weeds is unlikely to occur under any alternative.
- Best Management Practices (BMPs; See Appendix 2.1) aimed at reducing the likelihood of introducing weeds and/or spreading existing weeds would be in place under all the Action Alternatives.

Magnitude of Impacts to Invasive Plants and Noxious Weeds

This analysis defines levels of effects on invasive plants and noxious weeds as follows:

Negligible: The introduction and/or spread of invasive plants and noxious weeds would not be appreciably affected by management actions, including those that would increase or decrease ground disturbance, or those that have the potential to introduce or prevent the introduction of weeds. Negligible effects would be difficult to detect and it would not be clear that a particular management action was responsible for increasing or decreasing the level of weeds.

Minor: The introduction and/or spread of invasive plants and noxious weeds would be slight due to management actions, including those that would increase or decrease ground disturbance, or those that have the potential to introduce or prevent the introduction of weeds. Impacts would be small but detectable. The likelihood of being able to restore an impacted area to a desired, pre-infestation condition would be high. Beneficial effects would result in conditions where existing

weeds are contained and new introductions are reduced. Adverse effects would result in conditions where existing weeds would not be completely controlled, infestations are spreading, and new introductions occur.

Moderate: The introduction and/or spread of invasive plants and noxious weeds would be readily apparent due to management actions, including those that would increase or decrease ground disturbance, or those that have the potential to introduce or prevent the introduction of weeds. Impacts would be difficult to mitigate, although the ability to restore an area to a pre-infestation desired condition would be possible. Beneficial effects would result in conditions where existing weeds would be controlled and not spread further. New introductions would be minimal. Adverse effects would result in conditions where existing weed infestations persist and spread, and where new introductions would increase.

Major: The introduction and/or spread of invasive plants and noxious weeds would be clearly apparent and would be substantially affected by management actions, including those that would increase or decrease ground disturbance, or those that have the potential to introduce or prevent the introduction of weeds. Weed infestations would not respond well to mitigation measures and would occur even with BMPs in place. Restoring an area to a pre-infestation desired condition would be very difficult or nearly impossible. Beneficial effects would result in conditions where existing weeds would be nearly or completely eradicated, new introductions would be nearly or completely eliminated, and areas would be restored to ideal or near ideal desired conditions. Adverse effects would result in conditions where existing weed infestations would not be controlled and would expand rapidly. As a result, new introductions would be commonplace.

b. Impacts to Invasive Plants and Noxious Weeds

Impacts to invasive plants and noxious weeds in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Fish
- Wildlife
- Special Status Species
- Fire and Fuels Management
- Resources of Importance to Native American Tribes
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation

- Travel and Transportation
- Lands and Realty
- ACECs

One specific management action under the Action Alternatives regarding Early Detection-Rapid Response (EDRR) strategies under the climate change resource management program would also have an effect on weeds. This same management action, however, is repeated in the invasive plants and noxious weeds resource management program and is analyzed under that program. Impacts from Climate Change are thus not addressed separately.

Impacts Common to all the Alternatives

Impacts from Special Status Species (Plants)

Managing for special status plants under the No Action Alternative in order to maintain and protect their populations would likely involve controlling weeds. Protecting sensitive plant populations from weeds and maintaining those populations in a weed-free area would improve the vigor of the sensitive plants in such a way that they may be better able to keep new weeds from becoming established. Although the intensity of weed control activities may be moderate at the site-specific scale in the short term, the long-term impact to weed management would be beneficial and minor across the Decision Area as the presence of weeds decreases and the vigor of the special status plants improves.

Impacts from Minerals

Managing for Minerals under the No Action Alternative to allow for exploration and development would provide an opportunity for weeds to be introduced and become established. Exploration for leasable minerals such as oil, gas, and those from geothermal sources is expected to increase, but no production is anticipated. Exploration and development for precious metals, industrial minerals, and aggregate is expected to increase. Since the potential for weed introduction and establishment increases as the level of disturbance increases, exploration by itself would have a negligible to minor, adverse, long-term impact on invasive plants and noxious weeds. Though the potential for introducing weed seed by vehicles is high, the opportunity for establishment would be low, until there is a disturbance associated with development. Development of new community pits in response to demand for common varieties of sand, gravel, stone, and cinders is expected to increase. Such material sites tend to be conducive to the introduction and establishment of weeds due to the constant ground disturbance, the moving of material, and the frequency of vehicular traffic to and from the site. Therefore, the potential for weed introduction and establishment is high and could have a moderate, long-term, adverse impact on weed management across the Decision Area.

The current requirement of following a mining plan of operations (PoO) on larger operations and requiring a reclamation plan for all operations pertaining to salable and leasable minerals mitigates the effects of the potential for weed introduction and establishment. Continuing to

follow these plans would have a long-term, moderate, beneficial impact on weed management across the Decision Area.

Impacts Common to all the Alternatives (except Alternative 5a)

Impacts from Livestock Grazing

Managing for Livestock Grazing under the No Action Alternative to protect relict vegetation areas, and to achieve or maintain general resource objectives across the Decision Area by the protection of desirable vegetation through fencing or adjustments to grazing systems would help to increase the long-term vigor of the plants and protect the soil from undue disturbance. Restricting grazing through setting seasons of use, levels of utilization, and/or numbers and distribution where necessary in order to achieve objectives for vegetation would allow for desirable plants to increase and, thus, be better able to compete with weeds.

Adjusting livestock systems and stocking numbers to achieve or maintain vegetation objectives and restricting and/or excluding grazing where it results in significant resource damage would tend to decrease overall disturbance, thereby decreasing the potential for weed introduction and establishment. Excluding grazing where vegetation manipulation occurs through deferral by fencing or by resting the treated pasture for 2-5 growing seasons would serve to reduce ground disturbance in the area and give the desirable plants an opportunity to become well-established so that they would be better able to withstand grazing pressure and keep weeds from encroaching. Overall, the long-term effects on weed management would be moderate and beneficial across the Decision Area.

Constructing improvements where necessary to meet plant community objectives would increase disturbance in the short term, which would increase the potential for weed introduction and establishment and would have minor negative site-specific impacts. The long-term impacts from construction of such improvements across the Decision Area would be minor. Furthermore, the effects of meeting plant community objectives would be beneficial, as desirable plants improve their vigor and are better able to compete with weeds.

No Action Alternative

Impacts from Water Resources

Managing water resources under the No Action Alternative to protect, rehabilitate, or improve soils and watersheds during surface disturbing activities, and developing watershed management plans for areas having potential for significant improvement or further degradation would ensure that watershed conditions are favorable for desirable plant community development and maintenance. The existence of a desirable plant community would reduce the potential for the spread of noxious weeds as native and desirable non-native communities would have the opportunity to become established and outcompete weed infestations (DiTomaso 2000). Overall,

beneficial impacts would be long-term and range from minor to moderate throughout the Decision Area.

Excluding livestock grazing along identified stream segments, bogs, and spring overflows where use is incompatible with riparian management would be beneficial, assuming that the existing vegetation does not already contain a considerable amount of weeds. Allowing desirable vegetation to recover would increase vigor in these species, which would improve their ability to compete with weeds and prevent their establishment or keep them from spreading. If a considerable amount of weeds are present, aggressive treatment and rehabilitation of these sites may be required. Removing livestock by itself would not guarantee that the area would recover to a desirable plant community without some intervention. Site-specific impacts could be moderate, short-term, and adverse. Impacts across the Decision Area would be minor, long-term, and beneficial.

Impacts from Soil Resources

Managing soils under the No Action Alternative to maintain productivity and minimize erosion by focusing on managing those watersheds or portions of watersheds where the potential for either significant improvements or further degradation exists would help improve soil conditions and strengthen the vigor of plant communities. This, in turn, would reduce the spread of noxious weeds as native and desirable non-native communities would be given the opportunity to become established and better compete with weed infestations. While such actions would result in minor to moderate, beneficial, long-term impacts that would slow the spread of weeds, they would not be sufficient in completely controlling the continued spread of weeds in the Decision Area. The protection of unique soils such as hydric soils, biological crusts, and highly erosive soils is not addressed in the No Action Alternative, leaving these fragile soils susceptible to adverse impacts and subsequent weed invasions.

Impacts from Vegetative Communities

In general, managing vegetative communities under the No Action Alternative to move toward intact desirable plant communities by implementing projects and designing grazing systems to improve plant vigor would make these plant communities more resilient to disturbance in the long term and reduce the spread of noxious weeds as native and desirable non-native communities would be given the opportunity to become established and, thereby, be better able to compete with weed infestations. Over the long term, beneficial impacts could be major on individual sites that are highly degraded, but impacts would be moderate across the Decision Area. Long-term impacts would be minor on lands across the Decision Area that already support a desirable plant community.

The effects of implementing or modifying grazing in riparian areas would be the same as described above under Impacts from Water Resources.

Restricting grazing for 3-5 years on range rehabilitation project areas in non-native annual grass communities would allow for establishment of desirable plant species that are better able to compete with new weeds that may become introduced, allowing the rehabilitated area to remain in a relatively weed free state. Overall beneficial impacts would be long-term and range from minor to moderate across the Decision Area, depending on the number of acres that were rehabilitated.

Impacts from Invasive Plants and Noxious Weeds

Treating weed infestations that are confined to public lands and coordinating efforts with owners of adjoining infested non-public lands under the No Action Alternative would ensure the success of weed treatments in these areas. While minor to moderate benefits would occur since weeds would be treated, weeds usually are not confined to a single land ownership, but are spread by numerous controllable and uncontrollable means, and the treatment prescription for each weed and weed-infested area may be unique. The No Action Alternative also calls for the continuation of coordination and cooperation with county weed control officers on a regular basis. In addition, cooperation and coordination has expanded since 1989 to include multiple public and private organizations, in addition to county weed control officers. This coordination would continue under the No Action Alternative. While such actions would continue to have beneficial effects in terms of weed control in specific areas, the constraints imposed by the current Baker RMP (BLM 1989) do not allow for strategic weed management across the entire Planning Area. For example, an infestation may be confined to one or several parcels of non-adjacent lands but in close proximity to un-infested private or public lands. Under the No Action Alternative, these areas would not be considered for treatment, even though the threat of weeds spreading to the un-infested lands would be high. As a result, impacts on the ability to control weeds in areas where treatment would not occur would be moderate, long-term, and adverse across the Decision Area.

Since 1989, new national policies for managing vegetation have been adopted, which consist principally of the Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report (BLM 2007c) and its companion document, Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (BLM 2007c). The Vegetation Treatments Using Herbicides on BLM Lands in Oregon Final EIS has been completed and the ROD is due out in the fall of 2010. These documents direct the BLM to follow SOPs based on BLM guidelines that currently exist in policy, manuals, or handbooks, to ensure that treatment actions are effective. These procedures include using prevention and early detection to minimize weed problems in the future and re-vegetating treated sites. In addition, these documents direct the BLM to monitor treatments to ensure that vegetation management is effective, adaptive, and based on prior experience. Finally, these documents direct the BLM to foster collaborative relationships with individuals, communities, and governments to improve communication and find solutions to issues and problems. As mentioned above, coordination has expanded since 1989. Standard operating procedures are being considered, though not always followed, and prevention and early detection are part of the daily routine. The impacts on

weed management from fully implementing these policies across the Decision Area would be beneficial and moderate in the long term.

Impacts from Fisheries and Special Status Species (Aquatics)

Managing fisheries under the No Action Alternative by implementing projects that restore, maintain, or enhance fish habitat could involve construction activities which would create ground disturbance on the stream bank and disturbance to the stream bed, which could, in turn, provide areas favorable to the establishment of either newly introduced weeds or those spread from existing populations. However, such adverse impacts would be site-specific and short-term. Overall, such habitat improvements would generally have a minor, long-term, beneficial effect on weeds across the Decision Area.

Impacts from Wildlife

Implementation of habitat enhancement projects under the No Action Alternative, such as increasing and enhancing aspen forest types, would ultimately improve the composition and vigor of the plants in an area, which would make the plant community more resilient to weed introduction and establishment. Any projects that create ground disturbance could have a short-term, adverse impact at the site-specific scale as soils are exposed, but these impacts would become negligible as desirable vegetation becomes established. Overall, the results of habitat enhancement projects would generally have a moderate, long-term, beneficial effect on weed management across the Decision Area.

Impacts from Special Status Species (Wildlife)

Installing new platforms for ferruginous hawks would have a short-term, minor impact from any ground disturbance associated with the construction and placement of the platforms at the site-specific scale. Overall, the long-term, adverse effects would be negligible across the Decision Area.

Impacts from Fire and Fuels Management

Managing prescribed fire under the No Action Alternative to meet resource objectives and as a management tool to improve ecological condition and maintain natural plant community diversity and ecosystem health would have the potential to introduce and spread weed seeds and propagules, or to create conditions that favor the establishment of weeds. Striving to control a fire quickly would require an aggressive suppression response that may result in greater soil disturbance or use of vehicles than other, less aggressive methods. This higher level of disturbance and the higher number of vehicles would lead to greater potential for weed introduction and establishment. Fuels treatment activities that do not involve fire use can also create short-term disturbances, which could be moderate if heavy equipment is used. These effects would be negligible if the method used is hand cutting and access is on foot. Fire suppression activities and fuels treatment actions would have site-specific impacts that could be

adverse, short-term, and moderate. However, the long-term effects on weed control across the Decision Area would be beneficial and moderate as ecological condition is improved.

Areas that are already populated with undesirable plant species that thrive in post-burn conditions, such as cheatgrass, may experience a long-term increase in weedy species as a result of fire. In this case, effects would be long-term, adverse, and could be major at the local level, since these areas would be prone to further weed invasion and establishment unless intensive restoration is applied.

Impacts from Resources of Importance to Native American Tribes

Tribal interests were not addressed in the current Baker RMP (BLM 1989).

Impacts from Forestry and Woodland Products

Managing Forestry and Woodland Products under the No Action Alternative for PCT, commercial harvest, and prompt reforestation, and the sustainable production of other products such as posts and poles, would create ground disturbances and increase the potential for weeds to be introduced and become established. Opening up the forest canopy would allow for more sunlight to reach the forest floor which would be conducive to the growth and establishment of weeds. Although some weeds grow well in shaded areas, the majority of the challenges we have in the Decision Area are with species that prefer more open areas. The short-term, site-specific impacts to weed management would be moderate and adverse. As areas are reforested, the potential for weed establishment would decrease, resulting in long-term, minor, adverse impacts across the Decision Area.

Impacts from Recreation

Managing for Recreation under the No Action Alternative to enhance or maintain recreation opportunities would have the potential to cause soil disturbances, and could result in loss of vegetation cover and density in some areas and contribute to vegetation composition changes, opening the door for weeds to become established. Recreational activities can introduce and spread weed seeds and propagules from vehicles, boats, shoes, clothing, animals, and equipment. People coming from outside the area could also bring in new species of weeds. Recreation activities that occur in undisturbed and remote areas have the potential to introduce and distribute weeds into weed-free areas. Thus, the potential for moderate, long-term, adverse impacts to weed management across the Decision Area is high. However, the presence of people engaged in recreational activities presents an opportunity to incorporate weed education into recreation plans and implement weed awareness education at recreation sites. Given the increased opportunity to educate the public as recreational opportunities are enhanced, the risk of weed invasion due to recreation activities can be mitigated, and would thereby have moderate, long-term, beneficial effects across the Decision Area.

Construction activities associated with developments for recreation would have the potential to introduce and/or spread weeds and create ground disturbances, which would provide a favorable environment for weeds to grow. Such actions would have moderate, short-term, site-specific adverse effects to weed management until disturbed areas are rehabilitated. Over the long term, adverse impacts would be minor across the Decision Area.

Impacts from Travel and Transportation

Managing travel and transportation under the No Action Alternative by maintaining existing OHV designations would expose most of the Decision Area to the threat of introducing and/or spreading weeds from vehicles. Since the vast majority of acres in the Decision Area would be designated as open or limited, vehicles would be allowed to travel cross country or in to areas where weeds may not be present. Since vehicles are a known source of weed dispersal, allowing vehicles to travel cross country increases the risk of weed introduction and establishment as vehicles can bring weed seed and propagules from infested areas to uninfested areas, and introduce new weed species in to areas where they did not already exist (Gelbard 2003). Thus, the impacts to weed management would be moderate, long-term, and adverse across the Decision Area. Closing areas would eliminate vehicles as a source for transporting weed seed and plant parts in to new areas, or spreading existing weeds within an area or to a new area. Closing areas would have a moderate, beneficial, long-term effect on weed management across the Decision Area.

Impacts from Lands and Realty

Renewable Energy and Communications were not specifically addressed in the current Baker RMP (BLM 1989). Managing for Lands and Realty under the No Action Alternative through the acquisition, disposal, and exchange of lands would have the potential to increase or decrease the amount of weeds in the Decision Area. The BLM could dispose of or obtain lands which contain invasive plants and noxious weeds. Lands which are infested could lead to increases in weed problems on adjacent previously uninfested lands as weeds are spread from the acquired or disposed of parcel. Overall, the long-term impacts to weed management could be adverse or beneficial, but would be minor across the Decision Area.

Acquiring legal public access to parcels where there is currently no access would increase the potential for weed introduction and establishment as new areas are opened to motorized travel. Adverse impacts to weed management across the Decision Area would be minor and long-term.

Activities associated with developing ROWs and communication sites could introduce weeds and spread existing weeds. Like roads, ROWs are corridors for weed spread. Site-specific, adverse impacts would be moderate in the short term as ground is disturbed, but would become minor over the long term as disturbed areas are rehabilitated. Such areas would be a priority for monitoring and treatment of weeds following completion of the project.

Impacts from ACECs

Managing 48,153 acres as ACECs/RNAs could involve placing restrictions on activities such as commercial timber harvest, OHV use, mineral entry, ROWs grants, and livestock grazing. Restricting these activities could minimize new disturbances, which would serve to keep the potential for weed introduction and establishment low. However, in order to protect the relevant and important values for which these areas are designated, a more intensive weed management focus and the use of increased treatments in the short term would be required. Intensive treatments coupled with restrictions in activities that tend to introduce and spread weeds would result in fewer weeds in the long term. Overall, the impacts on weed management would be minor and beneficial across the Decision Area.

Impacts Common to all Action Alternatives

Impacts from Resources of Importance to Native American Tribes

Protecting culturally important plant gathering areas may require weed treatment methods that would likely be slower and most selective. Over the long term, keeping these areas free of weeds would have beneficial effects by sustaining a healthy native plant community that would be resistant to weed invasion. This would result in long-term, minor, beneficial impacts to weed management across the Decision Area.

Impacts from Lands and Realty

Impacts would be similar to those described under the No Action Alternative with the following exception. Although activities associated with developing renewable energy sites such as wind and solar would have the same general effects as those described under the No Action Alternative, the extent of the impacts would increase, as it is likely that the need to develop renewable energy will increase over the life of the RMP. The disturbance associated with developing renewable energy sites would have site-specific, short-term, adverse impacts to weed management, which would be moderate since the potential for weed introduction and establishment is high. Over the long term, adverse impacts would be minor to moderate, depending on the number of acres that are developed across the Decision Area.

Alternative 1

Impacts Same as Under the No Action Alternative

- Impacts from Fisheries and Special Status Species (Aquatics)

Impacts from Water Resources

Impacts from managing water resources to protect water quality would be the same as described under the No Action Alternative. In addition, restoring streams to improve water quality,

riparian condition, and aquatic habitat would have minor, long-term, beneficial effects across the Decision Area as recovered desirable plant communities would be better able to compete with weeds, preventing their establishment or keeping them from spreading. Ground disturbance resulting from removing and/or redesigning roads in RCAs and conducting 50 miles of stream restoration projects would result in moderate, short-term, adverse impacts at the local level. Monitoring and treatment of weeds following the completion of the project would keep long-term, adverse impacts to a minor level. Removing or redesigning roads within RCAs would eliminate a corridor for weed spread if roads are removed, and redesigning roads to remove the road to stream connection would reduce the potential for weeds to move between the road and the stream. Overall, impacts would be moderate, beneficial, and long-term across the Decision Area.

Impacts from Soil Resources

Impacts from managing soils to maintain and improve productivity and applying appropriate erosion control measures would improve soil conditions and strengthen the vigor of plant communities. This, in turn, would reduce the spread of noxious weeds as native and desirable non-native communities would be given the opportunity to become established and be better able to compete with weed infestations. In addition, management activities designed to direct adversely impacting actions away from unique soils under Alternative 1 would reduce the amount of ground disturbance and potential introduction of weeds, thereby providing less opportunity for weeds to become established in these areas compared to the No Action Alternative. Overall, these beneficial impacts to controlling weeds would be long-term and moderate across the Decision Area.

Impacts from Vegetative Communities

Under Alternative 1, constructing firebreaks and reducing road densities in Wyoming big sagebrush communities would create disturbed areas where weeds could become established; however, BMPs would be in place to reduce this risk. Adverse impacts would thus be short-term and minor in these communities. In the long term, however, reduced risk of fire would allow Wyoming big sagebrush communities to stay intact, thereby being able to successfully compete with weeds, while the reduced density of roads would eliminate corridors that allow weeds to spread. Compared to the No Action Alternative where firebreaks and road densities were not addressed, the impacts would be long-term, minor to moderate, and beneficial to the control of weeds in the Decision Area.

Successfully restored areas would have a desirable vigorous plant community, which would be better able to compete with weeds compared to a degraded community (Sheley et al. 1996). Reclaiming Wyoming big sagebrush communities at a 2:1 ratio would create moderate, short-term, adverse, site-specific impacts as potentially large areas would be disturbed in preparation for restoration. In the long term, however, the effect on weeds would be moderate and beneficial as desirable plants in these areas become established. In the introduction to the Vegetative Communities section, the probabilities of success for restoration efforts are described for each

alternative. Under Alternative 1, the probability of success is rated to be moderate to high. Thus, the adverse impacts to weed management would be minor over the long term. Compared to the No Action Alternative where reclamation of Wyoming big sagebrush communities was not addressed, the long-term impacts of successful restorations would be moderate and beneficial to the control of weeds across the Decision Area.

The activities associated with emphasizing fire to maintain a mosaic in Mountain big sagebrush communities have the same effects to weeds as those described under Fire and Fuels in the No Action Alternative. In the Vegetative Communities section, emphasizing fire as a tool to manage vegetation is not addressed under the No Action Alternative specific to any particular plant community. However, it is addressed in the Action Alternatives under the Mountain Big Sagebrush Communities section.

In riparian and wetland communities, modifying uses that are identified as causal factors of degradation, re-contouring slopes, and controlling undesirable vegetation would improve riparian conditions further than the No Action Alternative's reliance on addressing only modifications to livestock grazing. Re-contouring slopes would create ground disturbances and open up areas for weeds to be established, resulting in site-specific, adverse, short-term, minor impacts, improved riparian condition. In the long term, however, this would result in vigorous plants that would be better able to compete with weeds and prevent new weeds from becoming established. As a result, the overall, long-term impacts would be moderate and beneficial across the Decision Area.

Seeding 1,500-2,000 acres in non-native annual grass communities would be beneficial since these communities are largely degraded and infested with weeds. Establishing a desirable plant community on these sites would make them resistant to continued weed invasion. However, seeding methods may involve ground-disturbing activities which could contribute to the spread of weeds in the short term resulting in minor adverse site-specific impacts. Using livestock to reduce fine fuels, eliminating grazing during the hot season, and grazing natives only during the vegetative stage or after seed has set would have moderate, beneficial effects to weed control in the long term since these actions would improve vigor in the native species and reduce seed production in the non-native annual grasses. Although rehabilitation of these areas would not occur over very many acres, restoring these areas would have the effect of preventing a source for new cheatgrass spread in to new areas causing degradation on a larger scale. Successful restoration of these lands would reduce the potential for further spread and could break the accelerated fire cycle, which poses a risk of conversion of more areas to undesirable non-native annual grass communities. Compared to the No Action Alternative, which did not specifically address seeding in these communities, the overall impacts to weed control across the Decision Area would be beneficial, long-term, and moderate.

Activities aimed at maintaining forested sites in good condition by maintaining old-growth structure and composition, restoring the historic fire cycle, removing competing vegetation, and reducing the extent of juniper to its historic range could create moderate, short-term impacts at

the site-specific scale. However, over the long term, maintaining forested sites in good condition would have moderate, beneficial effects on weed control across the Decision Area as the vigor and composition of these sites would be improved and better able to compete with weeds, thereby reducing the likelihood that weeds would become established.

Impacts from Invasive Plants and Noxious Weeds

Impacts would be the same as those described under the No Action Alternative. In addition, existing weed sites would be evaluated for treatment method and priority for treatment based on location, species, and potential to spread, rather than focusing first on whether the site is wholly on BLM lands or is adjacent to BLM land. As a result, weeds would be treated more strategically across the Decision Area, and limitations due to the restrictions imposed under the No Action Alternative would be eliminated, resulting in long-term, moderate, beneficial impacts.

In addition, employing Early Detection and Rapid Response (EDRR) to reduce the introduction of new species and prevent the spread of weeds from existing sites to new areas would enable the BLM to focus on eradicating new, small infestations before they have a chance to become well established or spread to new areas. Although EDRR would be used to some degree under the No Action Alternative, an expanded program under Alternative 1 would focus on prevention and allow BLM to put a greater emphasis on protecting SMAs, habitats for special status and culturally important species, and recreation areas from becoming infested with weeds. Emphasizing EDRR would have long-term, moderate, beneficial impacts across the Decision Area.

Although some re-vegetation activities would occur under the No Action Alternative, intensive restoration activities would occur under Alternative 1 when natural recovery of the desirable plant community is unlikely. Intensive restoration activities would involve ground-disturbing actions such as mechanical drilling of seed in order to increase the likelihood of successful seedling establishment. Site-specific adverse impacts could be moderate in the short term as ground is disturbed, providing a favorable site for weeds to grow. Over the long term, as desirable vegetation becomes established, the impacts to the ability to control weeds would be moderate and beneficial across the Decision Area.

Impacts from Wildlife

Impacts from the implementation of habitat enhancement projects would be the same as those described under the No Action Alternative. In addition, Alternative 1 would involve ground-disturbing activities related to decommissioning roads and trails for priority wildlife purposes, and implementing restorative treatments on 50 acres per year in big game forested habitats. These activities could have moderate, short-term, site-specific adverse impacts that would create a favorable environment for the spread and establishment of weeds. Over the long term, as native vegetation recovers and occupies the soil profile, the area becomes better able to keep weeds from becoming established. Overall, the long-term impacts would be beneficial and minor across the Decision Area.

Impacts from activities to reduce sagebrush cover would be the same as those described under Impacts from Vegetation Communities above.

Making changes in livestock management in areas where it is detrimental to wildlife habitat quality would tend to decrease overall disturbance, thereby decreasing the potential for weed introduction and establishment (Olson 1999). Long-term impacts would be beneficial, localized, and minor.

Not authorizing sheep or goat grazing within 9 miles of an established bighorn breeding population would eliminate one method of weed control. If weed infestations dramatically spread as climate changes, or new weed species are introduced that do not respond well to other treatment methods, there could be demand for grazing by sheep and goats to control weeds. Under this alternative, about half the Decision Area would not be available for sheep or goat grazing, which could have a moderate, long-term, adverse impact on overall weed management.

The use of prescribed fire to improve wildlife habitat could have the potential to introduce and spread weed seeds and propagules, or to create conditions that favor the establishment of weeds. Site-specific impacts from fire suppression activities that create ground disturbances would be adverse in the short term and moderate. However, the overall effects on weed control across the Decision Area would be minor and beneficial as habitat is improved over the long term.

Impacts from Special Status Species (Wildlife)

Impacts from the implementation of habitat enhancement and restoration projects would be the same as described under the No Action Alternative in Impacts from Wildlife. Impacts from fire suppression activities in sensitive species wildlife habitat would be the same as described under Alternative 1 in Impacts from Wildlife. Activities to reduce the extent of juniper that is encroaching on sage-grouse habitat would have the same effects as those described under Alternative 1 in Impacts from Vegetative Communities.

Restricting motorized use to designated roads and trails would reduce the likelihood that weeds would be carried by vehicles in to new areas or spread from existing populations. Keeping motorized use to designated travel routes would allow for closer monitoring and treatment over fewer miles and would contribute to the protection of special status species habitat. Such use restrictions would have a long-term, moderate, beneficial effect on weed management across the Decision Area.

Compared to the No Action Alternative, which did not address fire in sensitive species wildlife habitat, juniper encroachment on sage-grouse habitat, or restricting motorized use to designated roads and trails, the impacts on weed management as it relates to special status wildlife species habitat would be moderate, long-term, and beneficial across the Decision Area as habitats are improved.

Impacts from Fire and Fuels Management

Managing prescribed fire to meet resource objectives, and conducting suppression activities and fuels treatment actions would have the same effects on weed management as those described under the No Action Alternative. In addition, employing minimum impact suppression techniques (MIST) in SMAs and locating temporary suppression support facilities in areas that are already adversely impacted would minimize further disturbance to new areas, which would discourage the establishment of weeds. Using already impacted areas would prevent weeds from being spread into new, previously uninfested areas. Impacts to weed management at the site-specific scale would be moderate, beneficial, and long-term, whereas impacts across the Decision Area would be minor, beneficial, and long-term.

Achieving resource objectives by using fuels management techniques over an assumed approximation of 40,000 acres per decade, and the prescribed use of wildland fire over an assumed approximated 30,000 acres per decade, would have the potential to create ground disturbances and introduce weeds or spread existing infestations. Impacts would be adverse in the short term and moderate to weed management at the site-specific scale. However, over the long term, as a desirable plant community becomes established and resource objectives are met, the impacts to weed management across the Decision Area would be moderate and beneficial.

Impacts from Forestry and Woodland Products

Managing forest and woodland stands to restore health and long-term productivity while reducing fuel loads, and contributing to societal needs for wood products through harvest, salvage, and silvicultural activities, would have the potential to introduce weed seed and propagules, thereby creating a favorable environment for weeds to be established, and for the spread of existing infestations. Such activities would have a site-specific, short-term, moderate, adverse impact on weed management. In the long term, there would be beneficial impacts to weed management as forest health is achieved. Overall, the total acreage of timbered stands in the resource area is so low that impacts to weed management across the Decision Area would be negligible.

Impacts from Recreation

Impacts would be similar to those described under the No Action Alternative with the following exception. Restricting recreational use where it is inconsistent with landscape health objectives would serve to maintain or improve these areas and would help to ensure that plant communities are resistant and resilient to weed invasion and establishment. The long-term, beneficial effects on weed management would be moderate across the Decision Area.

Impacts from Travel and Transportation

Managing for travel and transportation would involve significant alterations in the OHV designations, which would severely restrict vehicular travel and reduce the potential for weed

introduction and establishment. Limiting motorized use to existing roads and trails over the majority of the Decision Area (79 percent) and closing roads and trails to motorized use over an additional 20 percent of the Decision Area would reduce the amount of lands susceptible to weed introduction from vehicles transporting weed seed and propagules, and from weed establishment due to ground disturbance created by vehicles. Limiting off-road use would reduce the likelihood of weeds getting spread by vehicles to uninfested areas. Weeds occurring along roads are easy to detect and control, whereas out in remote, roadless areas, weed survey and treatment is much more difficult. Thus, the long-term impacts of restricting travel under Alternative 1 would be moderate and beneficial across the Decision Area.

Activities associated with the construction and maintenance of roads and trails would involve ground disturbance, which could create a favorable environment for weed establishment. Weed seed and propagules could be introduced to previously uninfested areas through equipment and vehicles, and could cause the spread of existing weeds. Roads are known corridors for weed spread and it would be expected that weeds would continue to infest roadsides and spread along them into new areas. Constructing roads and trails to access BLM road systems on land-locked parcels would have the same effects. Overall, there would be long-term, moderate, adverse impacts to weed management across the Decision Area.

Impacts from ACECs

Impacts would be the same as those described under the No Action Alternative, except that 86,878 acres would be designated, which would nearly double the extent, resulting in long-term, moderate, beneficial impacts across the Decision Area.

Alternative 2

Impacts Same as Under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Wildlife)
- Impacts from Forestry and Woodland Products

Impacts from Water Resources

Impacts from managing water resources to protect water quality would be the same as described under the No Action Alternative. Impacts from redesigning roads and implementing stream restoration projects would be similar to those described under Alternative 1, except that the extent of impacts from stream restoration projects would be reduced, because 30 fewer miles of stream would be restored than under Alternative 1. In addition, upgrading roads under Alternative 2 would encourage more use on them from the public and commodity producers, thus increasing the potential to introduce and spread weeds. Impacts from this increased use would be adverse, long-term, and moderate across the Decision Area.

Impacts from Soil Resources

Impacts from managing soils, with the exception of unique soils, would be the same as those described under Alternative 1. Impacts from not protecting unique soils would be the same as described under the No Action Alternative, with the exception that hydric or highly erosive soils would be protected from the development of new recreation areas. While this would reduce the potential for weeds to become introduced and established in these areas, thus reducing the adverse impacts, the magnitude of beneficial impacts would remain moderate across the Decision Area.

Impacts from Vegetative Communities

Impacts would be similar to those described under Alternative 1, with a few exceptions. Compared to Alternative 1, increasing road density would provide additional avenues for weed introduction and open new areas to weed introduction and establishment. Reducing sagebrush cover would create a site-specific, adverse, short-term disturbance that could be moderate if sagebrush is removed by a method such as discing, which would cause a great amount of ground disturbance. Reclaiming Wyoming big sagebrush at a 1:1 ratio would reduce the extent of short-term, adverse impacts compared to Alternative 1, since fewer acres would be manipulated. While this would also reduce the extent of long-term, beneficial impacts, overall, beneficial impacts would remain moderate and similar to Alternative 1. Under Alternative 2, however, weeds would be more difficult to control across the Decision Area because of its emphasis on commodity development, which would increase the potential for weed introduction and establishment as more areas would be accessed and disturbed.

Impacts from Fisheries and Special Status Species (Aquatics)

Compared to the No Action Alternative, projects aimed at improving instream fish habitat under Alternative 2 would be implemented to increase recreational fishing participation, which could have an adverse, long-term, minor effect on weeds across the Decision Area as the likelihood of weeds being introduced would increase with increased recreation.

Impacts from Wildlife

Impacts would be the same as those described under Alternative 1, with the exception that there would not be any restorative treatments on big game forested habitats under Alternative 2. Therefore, the overall extent of impacts would be reduced slightly compared to Alternative 1.

Impacts from Fire and Fuels Management

Managing prescribed fire to meet resource objectives would have the same effects on weed management as described under the No Action Alternative. Suppression activities, fuels treatment actions, MIST, and location of temporary suppression support facilities would have the same effects on weed management as described under Alternative 1.

Using only prescribed fire to achieve specific resource objectives and burning approximately 20,000 acres per decade would have similar impacts as described in Alternative 1, except that the extent of the impacts would be less since fewer acres would be burned, and use of wildland fire would not be employed, making site-specific impacts minor. Conversely, using fuels management techniques to achieve specific resource objectives over approximately 60,000 acres per decade would have similar impacts to Alternative 1, except that the extent of impacts would be greatest under this alternative since more acres would be treated (60,000 vs. 40,000). Although site-specific impacts would still be moderate, the increased extent could have effects trending more toward major than under Alternative 1. In either case, as a desirable plant community becomes established over the long term, the beneficial impacts to weed management would be moderate across the Decision Area.

Impacts from Recreation

Impacts would be similar to those described under Alternative 1 with the following exceptions. Providing for opportunities that emphasize vehicle-based activities and building facilities would increase the potential for weed introduction and establishment. Although the overall magnitude and extent of beneficial impacts would be similar to Alternative 1, it could be more difficult to control weeds across the Decision Area under this alternative over the long term because of its emphasis on vehicular based recreation and facility development and their potential to spread weeds. Thus, there could be long-term, moderate, adverse impacts across the Decision Area.

Impacts from Travel and Transportation

The impacts from having Limited and Open designations would be the same as those described under Alternative 1. Having fewer Closed areas would have impacts similar to those described under the No Action Alternative, though the magnitude of the impacts would be negligible compared to the No Action Alternative, and minor compared to Alternative 1. Activities associated with constructing roads and trails, and improving the road and interim route network to encourage use and create increased opportunities for economic and commodity development, would encourage increased use of the road network. While this would increase the extent of adverse impacts compared to Alternative 1, the magnitude of impacts would remain moderate across the Decision Area over the long term.

Impacts from ACECs

Impacts would be the same as those described under the No Action Alternative, except that only 37,132 acres would be designated as ACECs, which would decrease the extent of the minor, long-term beneficial impacts across the Decision Area.

*Alternative 3*Impacts Same as Under the No Action Alternative

- Impacts from ACECs

Impacts Same as Under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Wildlife)
- Impacts from Forestry and Woodland Products

Impacts Same as Under Alternative 2

- Impacts from Fisheries and Special Status Species (Aquatic)
- Impacts from Travel and Transportation

Impacts from Water Resources

Impacts from managing water resources to protect water quality would be the same as described under the No Action Alternative. Impacts from redesigning and upgrading roads would have the same effects as those described under Alternative 2. The impacts from stream restoration projects would be the same as described under Alternative 1, except that the extent of impacts would be reduced slightly as ten fewer miles of stream would be restored under Alternative 3. Overall long-term impacts would remain beneficial and moderate across the Decision Area.

Impacts from Soil Resources

Impacts would be similar to those described under Alternative 1, except that beneficial impacts from protecting unique soils would be reduced by allowing new recreation use areas to be developed in locations with biological crusts, which would expose such fragile soils to surface-disturbing activities, and increase the potential for weeds to spread to these areas. While this would increase the extent of impacts compared to Alternative 1, overall impacts would remain beneficial and moderate across the Decision Area.

Impacts from Vegetative Communities

Impacts would be similar to those described under Alternative 1, with a few exceptions. Compared to Alternative 1, seeding projects would have the same type of impacts but over a smaller acreage, which would reduce the extent of the impacts. Emphasizing forest treatments in stands in popular recreation areas could have a moderate, adverse, long-term effect on weeds at the site-specific scale in that these stands could become an attraction to recreators who have the potential to bring weed seeds and propagules with them that could be introduced to new areas.

However, the magnitude of the impacts across the Decision Area would be minor since only approximately 20 percent of the Decision Area is forested.

Impacts from Wildlife

Impacts would be the same as described under Alternative 1, with the exception that impacts from restorative treatments on forested big game habitat would be less extensive due to only half as many acres being treated under Alternative 3 compared to Alternative 1. The resulting impacts would be adverse and minor in the short term at the site-specific scale, but negligible over the long term across the Decision Area.

Impacts from Fire and Fuels Management

Impacts would be the same as those described under Alternative 2 with the following exceptions. Using prescribed or use of wildland fire to achieve specific resource objectives over an assumed approximation of 25,000 acres per decade would have the same impacts to weed management as described under Alternative 1. The extent of impacts would be slightly more than in Alternative 2, but slightly less than in Alternative 1. The short-term, site-specific impacts would be adverse and minor to moderate. Using fuels management techniques to achieve specific resource objectives over an assumed approximation of 35,000 acres per decade would have similar impacts to Alternative 1, except that the extent of impacts would be less since fewer acres would be treated, resulting in minor to moderate, site-specific impacts. In either case, as a desirable plant community becomes established over the long term, there would be moderate, beneficial impacts to weed management across the Decision Area.

Impacts from Recreation

Impacts would be the same as those described under Alternative 2, except that it could be more difficult to control weeds across the Decision Area in the long term under this alternative because of its emphasis on recreation. Increased visitor use could increase the potential for weed introduction and establishment as more areas are accessed and potentially disturbed. While this would increase the extent of impacts compared to Alternative 2, it would result in long-term, moderate, adverse impacts across the Decision Area. In addition, compared to Alternatives 1 and 2, there could be an overall, long-term, moderate, beneficial effect on weed management across the Decision Area due to the increased opportunities to educate the public about their role in weed prevention.

Alternative 4

Impacts Same as Under the No Action Alternative

- Impacts from Fisheries and Special Status Species (Aquatics)

Impacts Same as Under Alternative 1

- Impacts from Special Status Species (Wildlife)
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Forestry and Woodland Products
- Impacts from ACECs

Impacts from Water Resources

Impacts from managing water resources to protect water quality would be the same as described under the No Action Alternative. Impacts from road restoration and removal and stream restoration projects would be similar to those described under Alternative 1, except that the extent of impacts would increase as 30 more miles of streams would be restored than under Alternative 1. Overall, long-term impacts would remain moderate and beneficial across the Decision Area.

Impacts from Soil Resources

Impacts would be the same as described under Alternative 1, with the exception that areas with biological crusts would be more likely to stay intact, thereby becoming less susceptible to weed infestations due to more stringent grazing restrictions (Parks 2005). Light grazing levels under Alternative 4 would not cause as much ground disturbance compared to moderate grazing levels (as under Alternative 1), making it less likely that weeds would become established. Not grazing during summer would allow desirable plants to increase their biomass and vigor, which would make them better able to compete with weeds, should they become introduced. Beneficial impacts to the control of weeds in areas with biological crusts would be moderate and long-term across the Decision Area.

Impacts from Vegetative Communities

Impacts would be similar to those described under Alternative 1, with a few exceptions. The adverse, short-term impacts from reclaiming Wyoming big sagebrush communities, implementing seeding projects, and treatments in juniper woodlands would be similar to those described under Alternative 1, but would occur over a larger area, which would increase the extent of impacts and could increase overall, short-term impacts from minor to moderate. On the other hand, the long-term impacts would be more beneficial under Alternative 4 as overall vegetation health would improve across a larger area than under the previous alternatives, which would increase beneficial impacts from minor to moderate across the Decision Area.

Impacts from Wildlife

Impacts would be the same as those described under Alternative 1, with the exception that there would be no net increase in the number of roads. Since roads are known corridors for weed spread, not increasing the number of roads would not increase the potential for weed introduction

to areas currently not infested, nor would it help to introduce new weed species. In addition, the risk of weed introduction and establishment would be reduced compared to Alternative 1 since no new road construction activity would occur. These impacts would be moderate, long-term, and beneficial

Not authorizing sheep or goat grazing within 30 miles of bighorns would make none of the Decision Area available for sheep and goat grazing to control weeds, which would increase the extent of these impacts. Overall, long-term, adverse impacts would remain moderate across the Decision Area.

Impacts from Fire and Fuels Management

Impacts would be the same as those described under Alternative 2 with the following exceptions. Using prescribed fire or the use of wildland fire to achieve specific resource objectives over an assumed approximate of 50,000 acres per decade would have the same impacts to weed management as described under Alternative 1, except that the extent of the impacts would be greatest under Alternative 4 since the highest number of acres would be proposed (50,000 vs. 30,000). Although site-specific impacts would still be moderate, the increased extent could have effects trending more toward major than under Alternative 1. As a desirable plant community becomes established over the long term, the beneficial impacts to weed management would be moderate across the Decision Area. Using fuels management techniques to achieve specific resource objectives would result in the same magnitude and extent of impacts as in Alternative 2.

Impacts from Recreation

Impacts would be the same as those described under Alternative 1.

Impacts from Travel and Transportation

The impacts from having Limited and Open designations would be the same as those described under Alternative 1. Closed areas would consist of 30 percent of the Decision Area, including Virtue Flat ACEC outside of the designated OHV area. The effects on weed management would be beneficial as the potential to spread weeds by vehicles would be eliminated. Closing Virtue Flat ACEC outside of the already designated OHV area would eliminate a potential source of weed introduction since so many of the users come from outside of the area and have the potential to bring new weeds with them. The magnitude of the overall, long-term, beneficial effects across the Decision Area though would be moderate as only 30 percent of the total lands available would be designated as Closed.

Reducing maintenance on the current road and interim route network would reduce the potential for weed introduction, spread, and establishment. Roads are known corridors for weed spread and reducing maintenance or allowing roads to become primitive trails would discourage frequent travel, which would, in turn, have moderate, long-term, beneficial effects to weed management across the Decision Area.

The development of trails to access BLM road systems on land locked parcels would restrict vehicular access and would have a reduced adverse impact on weed management compared to Alternative 1. Although trails would still serve as corridors for weed spread, restricting vehicular access would eliminate one potential source of weed introduction. Overall, long-term, adverse impacts to weed management across the Decision Area would be minor.

Alternative 5

Impacts Same as Under the No Action Alternative

- Impacts from Fisheries and Special Status Species (Aquatics)

Impacts Same as Under Alternative 1

- Impacts from ACECs
- Impacts from Recreation

Impacts Same as Under Alternative 4

- Impacts from Water Resources
- Impacts from Soil Resources
- Impacts from Wildlife
- Impacts from Special Status Species (Wildlife)
- Impacts from Travel and Transportation

Impacts from Vegetative Communities

Impacts from constructing firebreaks and reducing road densities in Wyoming big sagebrush communities would be the same as those described under Alternative 1. Impacts from reclaiming Wyoming big sagebrush and implementing seeding projects would be the same as under Alternative 4 in terms of the area impacted; however, using only aerial or broadcast methods of seeding under Alternative 5 would reduce short-term, site-specific, adverse impacts, since the amount of ground disturbance would be limited. On the other hand, the probability that a restoration effort would be successful under Alternative 5 is much lower compared to Alternative 1, since less aggressive seeding methods and only native seed would be used. Unsuccessful restoration efforts would result in adverse, moderate, long-term impacts across the Decision Area as these sites would likely become degraded and provide a favorable bed for weeds to grow in and expand without competition from other plants.

Prohibiting grazing on 303(d)-listed streams could increase long-term, beneficial impacts to weed management and be moderate in magnitude as desirable riparian vegetation is allowed to recover. If the existing vegetation is undesirable and no further actions are taken beyond removing the livestock, then the effect on weeds could be adverse, long-term, and moderate

across the Decision Area as the weeds perpetuate themselves and could spread downstream or out in to the uplands. The magnitude of impacts from managing forested communities would be reduced to minor due to the lack of commercial harvesting, which would reduce the number of site entries and minimize ground disturbance. The extent of impacts in Juniper Woodlands would be reduced due to limits placed on where juniper would be treated (e.g., only where it is encroaching on riparian and/or Wyoming big sagebrush sites). In the long term, it could be more difficult to control weeds across the Decision Area under Alternative 5 because of its emphasis on allowing natural processes. In areas where sites are already degraded or in a downward trend and weeds are well established, or in areas where a disturbance like a wildfire occur, relying on unobtrusive, non-aggressive restoration methods would likely not be the most effective at establishing a native plant community quickly enough to effectively compete with weeds. These areas would become hotspots from which weeds could spread and could have a long-term, major, adverse impact across the Decision Area.

Impacts from Invasive Plants and Noxious Weeds

Impacts would be the same as those described under Alternative 1, except that using only non-ground-disturbing techniques where active restoration is necessary and requiring that only native plant materials be used could make it difficult to get native plants established quickly enough to compete with weeds. Native plants are often not as competitive as weeds or desirable non-native plants and could have a harder time becoming established on sites that were not mechanically prepped or drilled. In some areas, weeds have been well established for many years and restoration of these sites requires intensive treatments involving ground disturbance by such methods as drill seeding. Although some sites would be successfully restored using only non-ground-disturbing methods, repeated failed attempts to reseed an area would likely perpetuate the weed problem and make future restoration efforts even more difficult. Overall, the effects of implementing this alternative could have an adverse, long-term, moderate impact to weeds across the Decision Area.

Impacts from Fire and Fuels Management

Impacts would be the same as those described under Alternative 2, with the following exceptions. Using prescribed or use of wildland fire to achieve specific resource objectives over an assumed approximation of 40,000 acres per decade would have the same impacts to weed management as described under Alternative 1. The extent of impacts would be more than in Alternative 1, but less than in Alternative 4. The short-term, site-specific impacts would be adverse and moderate, but as a desirable plant community becomes established over the long term, the impacts to weed management would be moderate and beneficial across the Decision Area. Using fuels management techniques to achieve specific resource objectives over an assumed approximate of 25,000 acres per decade would have similar impacts to Alternative 1, except that the extent of impacts would be much less since the fewest acres would be treated under this alternative, making adverse, short-term, site-specific impacts minor. Since so few acres would be treated, the beneficial impacts to weed management would be minor across the Decision Area over the long term.

Impacts from Forestry and Woodland Products

Impacts would be the same as described under Alternative 1, with the exception that no commercial harvest, salvage, or sale of forest products would be allowed. Managing for non-commercial use would require fewer entries into individual stands and, therefore, less ground disturbance, less traffic, and less potential for weed introduction and establishment. Compared to the other alternatives, the impact to weed management under this alternative is most beneficial over the long term. However, the amount of forested areas is so small that the overall, long-term effects across the Decision Area would be negligible.

Alternative 5a

Impacts from Livestock Grazing

Although weeds would still be spread by wildlife, wind, water, and people, not having livestock would eliminate one source of weed introduction by animals. Areas impacted by livestock loafing would be able to re-vegetate, and weeds, which are common in these areas, could be successfully controlled. Overall stress to desirable vegetation in livestock use areas would be reduced, and these plants would be able to increase vigor and become more competitive against weeds. Thus, livestock removal would have a long-term, beneficial, moderate effect on weed management across the Decision Area.

In areas dominated by invasive non-native annual grasses, complete removal of livestock would allow cheatgrass to reseed in these areas, which would perpetuate the degradation of the site by increasing the fire frequency and by taking early advantage of resources so that they would not be available for native plants. Grazing cheatgrass in its early stages prevents it from producing seed and provides a great deal of high quality forage for livestock. Removing livestock from these areas could have a moderate, long-term, adverse effect on weed management both at the site-specific and Decision Area scales if immediate restoration of these areas is not achieved.

c. Cumulative Impacts

No Action Alternatives

Past, present, and future management actions that contribute to the introduction, establishment, and spread of invasive plants and noxious weeds across the Baker Resource Area include: prescribed fire, road and facilities construction and maintenance, livestock grazing, mining, noxious weed treatments, development, restoration projects, and recreational pursuits. Natural events and processes such as wildfire, flooding, landslides, climate change, and wind and water movement also create disturbances and contribute to the introduction and spread of weeds. These actions and events alter the historic range of native species composition, structure, and distribution across the landscape, which allows weeds to invade and establish themselves.

Any management action that creates ground disturbances or promotes activities that would be likely to introduce weeds has the potential to have an adverse effect on weed management. Ground-disturbing activities can provide a favorable bed for weeds to grow in and expand without competition from other plants as soils are exposed. Movement of people, animals, and equipment can spread existing weeds, and the movement of people and animals can introduce new weeds from outside the Planning Area or from an infested part of the Planning Area into an uninfested part.

Cooperation and coordination in the war on weeds has been strong and successful across multiple jurisdictions in the Planning Area. The USFS, Oregon Department of Agriculture (ODA), county weed districts, and numerous private landowners all have weed control programs in place and work together with BLM to manage weeds strategically under an early detection and rapid response framework. These partnerships have gained momentum over the years, and that momentum and strong support should persist in the foreseeable future. The cumulative impact of these efforts would be synergistically positive over the long term, and moderate to major in magnitude across the Planning Area.

Although there are some benefits to weed management under this alternative, such as the effects of improving soils and watersheds and moving toward desirable plant communities, the overall long-term success in controlling weeds would be limited. The key individual component of the No Action Alternative which would most adversely impact weed management would be the designation of all BLM lands as open to cross country motorized travel except for certain areas within SMAs or specific roads and trails which are closed. Therefore, most of the Decision Area would be exposed to the threat of introducing and/or spreading weeds from vehicles. The impacts to weed management would be moderate, long-term, and adverse. The threat of introducing and/or spreading weeds from vehicles would carry over on to adjacent lands. Vehicles traveling through weed infested areas on BLM lands could easily transport weeds to adjacent lands. Long-term impacts could be adverse and moderate.

Alternative 1

Under this alternative, emphasizing proactive management to achieve long-term ecosystem health and resiliency and implementing restoration projects in degraded areas would promote plant communities that are vigorous, diverse, better able to resist weed invasion, and better able to compete with established weeds. Designating 70 percent of the Decision Area as Limited to cross county motorized travel would reduce the potential for weeds to be introduced and spread, as well as reduce the potential for disturbance by vehicles, which would, in turn, leave less of the Decision Area vulnerable to weed invasion. The Early Detection and Rapid Response (EDRR) strategy for weed management would be emphasized and weeds would be treated strategically based on their risk of spread, rather than whether or not they are wholly on BLM lands. Compared to the No Action Alternative, Alternative 1 provides for greater long-term success in controlling the spread of weeds, as more areas are restored. The overall beneficial impacts to weed management across the Planning Area would be moderate and long-term.

Although the impacts to adjacent lands would be similar to those described under the No Action Alternative, since weed treatments would be evaluated and prioritized based on risk of spread rather than jurisdiction, and cross county motorized travel would be limited, the extent of adverse impacts would be reduced.

Alternative 2

This alternatives' emphasis on commodity production and development would increase the risk of weed introduction and establishment. Although weeds would be managed the same as under Alternative 1, because of the increased potential for weeds, there would be an even greater emphasis placed on EDRR. Fewer acres would undergo active restoration and more acres would be open for development, which would leave degraded plant communities unattended and open up more areas to the potential for weed introduction and establishment. The overall, long-term effects on weed management across the Planning Area would be the same as under the No Action Alternative, except that the extent of the adverse effects would be greater.

An increased risk of weed invasion on BLM lands would translate in to an increased risk of weed invasion on adjacent lands. This alternatives' emphasis on commodity production and development would encourage more use of BLM lands, which could adversely impact adjacent lands that are traveled through to access BLM parcels. Impacts to adjacent lands would be the same as under the No Action Alternative, except that the extent of the adverse impacts would be greater.

Alternative 3

The potential for weed introduction and establishment would be the same as Alternative 2, except that the emphasis would be on developments pertaining to recreation use and opportunities. More acres would be restored than Alternative 2, but removal would be similar to Alternative 1 and the same effects to weed management.

Impacts to adjacent lands would be similar to Alternative 2, except that areas of impact would be concentrated along routes to recreation sites and areas of recreation opportunities. Thus, the extent of impacts would be reduced compared to Alternative 2, but would remain moderate in the long term.

Alternative 4

Impacts would be the same as Alternative 1 except that 30 percent of the Decision Area would be closed to motorized access and more acres of Wyoming big sagebrush would be reclaimed. Thus, the extent of impacts would increase from Alternative 1, resulting in benefits that would be long-term and moderate to major.

Limited motorized access and more restoration on BLM lands would reduce the potential for weeds to spread to and from adjacent lands as weed populations are controlled, areas are

restored, and motorized access is limited. Thus, the extent of impacts would increase from Alternative 1 resulting in benefits that would be long-term and moderate to major.

Alternative 5

Impacts would be the same as Alternative 1, except that using non-ground-disturbing techniques where restoration is necessary and requiring that only native plant materials be used could make it difficult for native plants to become established quickly enough to effectively compete with weeds. Although some sites would be successfully restored under this alternative, the probability that a restoration effort would be successful under Alternative 5 is much lower in comparison to Alternative 1. Unsuccessful restoration efforts would result in adverse, moderate, long-term impacts across the Decision Area.

Furthermore, impacts to adjacent lands could be adverse and moderate in the long term if the BLM's restoration efforts are unsuccessful. Weeds would both remain and have the potential to spread on to adjacent uninfested lands.

Alternative 5a

Removing livestock would eliminate one source of weed introduction and spread, and would allow plant communities in good condition to recover, which would have a moderate, long-term, beneficial impact on weed management. However, in areas dominated by non-native annual grasses, removing livestock could be detrimental since these grasses would be allowed to reseed and persist, which would have a moderate, long-term, adverse impact.

Removing livestock from BLM lands could have beneficial effects to adjacent lands since weeds would no longer be spread from BLM lands to adjacent lands by livestock. On the other hand, removing livestock from BLM lands could put more grazing pressure on adjacent lands and contribute to degradation of those plant communities, opening the door for weed introduction and establishment. The scope and magnitude of adverse and beneficial impacts would be the same as described for BLM lands.

6b. INVASIVE SPECIES (TERRESTRIAL AND AQUATIC ANIMALS)

a. Indicators, Methods, and Assumptions

Invasive Animal Species Indicators

Primary indicators that can be monitored include regular survey, detection, treatment, control and management, and monitoring by BLM staff, as well as frequent coordination with other federal, state, and county agencies, and non-governmental organizations (NGOs) involved in the prevention, control, and monitoring for invasive species of all types. Constant vigilance is required in today's mobile world. Inspectors and agents for either the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) or ODA intercept

or discover at least one unwanted non-native new plant, animal, insect or other invasive species somewhere in the state of Oregon almost every week throughout the year.

Invasive Animal Species Methods and Assumptions

Education of BLM staff, as well as the public, regarding the constant threat from invasive species is critical to preventing or reducing the possibility of unwanted species establishing on public lands within the Planning Area. Working with APHIS, state agencies such as the ODA, ODFW, ODF, and county agencies, etc. are and will continue to be a vital part of a coordinated effort to deal with this issue. These agencies are all monitoring regularly for the arrival or discovery of new species within the state and Planning Area, as well as watching what is happening in neighboring states.

Magnitude of Impacts to Invasive Animal Species

This analysis defines levels of effects on invasive species, excluding plants, as follows:

- Negligible:*** The introduction and/or spread of invasive species would not be appreciably affected by management actions, including those that would have the potential to introduce or prevent the introduction of such species. Negligible effects would be difficult to detect, and it would not be clear that a particular management action was responsible for introducing or increasing or decreasing the population level of a particular species.
- Minor:*** The introduction and/or spread of invasive species would be slight due to management actions, including those that would increase, decrease, or have the potential to either introduce or prevent the introduction of a species. Impacts would be small but detectable. The likelihood of being able to restore an impacted area to a desired, pre-infestation condition would be high. Beneficial effects would result in conditions where existing invasive species would be controlled and new introductions are minimal.
- Moderate:*** The introduction and/or spread of an invasive species would be readily apparent due to management actions, including those that would increase, decrease, or have the potential to either introduce or prevent the introduction of a species. Impacts would be difficult to mitigate, although the ability to restore an area to a pre-infestation desired condition would be possible. Adverse effects would result in conditions where unwanted species would be present and new introductions would occur.
- Major:*** The introduction and/or spread of invasive plants and noxious weeds would be clearly apparent and would be substantially affected by management actions, including those that would increase or decrease ground disturbance, or that have the potential to introduce or prevent the introduction of a new species. Existing populations would not respond well to mitigation measures and impacts would occur even with BMPs in place. Restoring an area to a pre-infestation desired condition would be very difficult or nearly impossible. Beneficial effects would

result in conditions where existing invasive species are nearly or completely eradicated, new introductions are nearly or completely eliminated, and areas are restored to ideal or near ideal desired conditions.

Impacts are also usually described in terms of duration, which are often defined as follows:

- Short-term:* Anticipated effects occur during implementation of the management action and would last from a few hours to a few weeks.
- Moderate-term:* Anticipated effects last more than a few weeks up to a year.
- Long-term:* Anticipated effects are continuous for over a year or occur after five years.

There is always the risk of new invasive species being discovered or establishing themselves on public land. This probability should be expected and planned for. Most invasive species take some time to become established. Therefore, the short-term (less than 1 year) and moderate direct and indirect impacts of new invasive species from any of the alternatives are generally not expected to be significant or severe in nature. This assumes that both federal and state agencies would respond quickly to any reports of a new species being found and confirmed. In rare cases the potential does exist for significant impacts even in the short term, but this would be very dependent on the individual species and circumstances, and assumes that the species in question went undetected for some time. Should an invasive species become established, the long-term (5 years or longer) and cumulative impacts could be significant from both a biological and economic perspective. The new species would probably not have the predators or other natural controls that tend to keep populations in check within its original environment. Also, non-native species frequently out-compete native species for limited resources and, once established, can quickly expand their population numbers and the size of the area they occupy. Some of the biggest impacts are that invasive species can alter habitat needed by native species, reduce site productivity, degrade water quality, disrupt food chains, and have a serious economic effect over time.

b. Impacts to Invasive Species (Terrestrial and Aquatic Animals)

The potential for impacts to occur to this program would most likely arise from actions proposed under the following resource management programs:

- Climate Change
- Wildlife and Fisheries
- Forestry and Woodland Products
- Recreation and Travel and Transportation

Other programs have the potential to contribute to this problem as well. For example, larvae or seed may travel on mining or logging equipment brought in from out of state. However, some of the proposed vegetation manipulation projects in several of the other program alternatives, wildfires, or the lack of forest health projects, depending on the alternative, are the primary

resource activities that could increase the risk of invasive species establishment (including noxious weeds), or conversely, help reduce this risk. Refer to the Invasive Plants and Noxious Weeds Section analysis for additional information regarding potential impacts from some of these proposed treatments.

Impacts Common to all Alternatives

Impacts from Climate Change

Climate change was not addressed in the current Baker RMP (BLM 1989). However, as noted elsewhere, recent Department and Bureau policy and management direction is to consider climate change in all future management actions.

There is a general consensus that over time, global warming and other aspects of climate change would favor certain invasive species over many native species. For analytical purposes, the life of this RMP is 20 years. It may be possible towards the end of this planning period to observe this expected shift in conditions favoring invasive species, but it is not expected to be a significant influence in the short or moderate term. Conditions 30 to 50 years from now could be significantly different enough that changes in environmental factors favoring certain species over others should be very noticeable.

Under all alternatives, the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate, or even major, if management control efforts were slow or ineffective. The eventual impacts and level of success at control efforts would be highly species dependent and demonstrates the importance of an EDRR approach to managing invasive species.

Impacts from Wildlife and Fisheries

ODFW has identified its “10 Most Unwanted Invasive Species” as:

- Zebra and Quagga Mussels
- Northern Snakehead
- Asian or Silver Carp
- Chinese Mitten Crab
- New Zealand Mud Snail
- Rusty Crayfish
- Oriental Weatherfish
- Feral Swine
- Nonnative Turtles: Red-eared and Common Snapping Turtles
- American Bullfrog

Nine of the species listed above are aquatic vertebrates or invertebrates. Effective January 1, 2010, Oregon has a new law requiring boaters to purchase an aquatic invasive species permit. Money generated would fund new prevention and control programs by the Oregon State Marine Board and ODFW. This law was enacted due to the increasing awareness of how damaging it would be to both the environment and economy of the state if species such as zebra and quagga mussels were to become established. All boaters are being encouraged to inspect and wash off all watercraft and air-dry the boat for at least five days before launching in other waterways if a hot wash or bleach flush is not available. These actions would also help prevent the introduction or spread of noxious aquatic plant species as well (see Noxious Weeds section).

Many agencies and NGOs have excellent websites that list and discuss specific invasive species including the threats and impacts the species may pose. Instead of a detailed discussion and analysis in this RMP of any specific species that may pose a threat to the Planning Area please refer to the following websites:

The ODFW website is http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp.

The Oregon Invasive Species Council maintains a very informative “100 Worst List” that can be found on its’ website at <http://www.oregon.gov/OISC/>. This list includes micro-organisms, birds, mammals, reptiles, fish, both land and aquatic plants, and land and aquatic invertebrates.

The USDA National Agricultural Information Library hosts the National Invasive Species Information Center website at <http://www.invasivespeciesinfo.gov/>.

Additional information can be found at the National Invasive Species Council website. The council was established by Executive Order (EO) to ensure that federal programs and activities to prevent and control invasive species are coordinated, effective and efficient. This site has information that includes such subjects as prevention, control, management, and restoration, as well as education and research, and more: <http://www.invasivespecies.gov/>.

If an invasive species on one of the above agency lists were to be found on public land, a rapid, coordinated response would be initiated. NEPA analysis would be prepared as needed. If eradication or control efforts or other management actions are not successful and a species expands to other parts of the Planning Area or the state, the long-term impacts could be significant for the reasons stated previously.

The periodic treatment of small isolated grasshopper infestations in coordination with APHIS and ODA is the only actual control action that has occurred on public rangeland in the recent past, not counting noxious weed management activities discussed elsewhere. Dimilin, a grasshopper growth regulator has been the treatment of choice on grasshoppers and was used on less than 200 total acres of public land within the Planning Area in 2008 and on a total of 2,428 acres of public land in 2009. Historically, grasshopper populations have been very cyclic and control actions were seldom needed. There have been a few small isolated outbreaks

periodically, but the last serious infestation in the Planning Area was in the early 1980's, prior to the 2008 infestation. Cyclical explosions in grasshopper populations are expected to continue every few years when winter and spring temperature and soil moisture conditions are conducive.

Short-term impacts during those years with an outbreak are a shortage of summer or fall forage for livestock and wildlife in certain areas depending on where the infestation occurs. Since mature grasshoppers can fly, they can also have an adverse impact on private agricultural lands, by consuming or damaging crops still in the field. Long-term impacts should be negligible or moderate, but it should be noted that grasshopper problems tend to be associated with rangeland and pasture areas in relatively poor condition as these areas make ideal nesting sites for several grasshopper species. If rangelands are in fair to good or better condition, or improving, then the frequency of outbreaks should be reduced in those areas over time.

It should be noted that APHIS is actually the lead agency responsible for treatment actions on public lands for grasshoppers and Mormon crickets. APHIS has a programmatic EIS in place and prepares an annual EA tiered to the EIS, as well. Treatments and other management actions must meet BLM stipulations and must have the concurrence of the BLM management official responsible for the public lands to be treated.

Under all alternatives the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate, or even major, if management control efforts were slow or ineffective. The eventual impacts and level of success at control efforts would be very species dependent and demonstrate the importance of an EDRR approach to managing invasive species.

No Action Alternative

Impacts from Forest and Woodland Products

Although they are native endemic species, several forest insect species can become pandemic at times. These include tussock moth, western pine bark beetle, mountain pine beetle, Douglas-fir beetle, fir engraver beetle, and spruce budworm. To help control outbreaks, the use of insecticides, biological control, and cultural practices have occurred in the past as part of the forest and woodland products program. These management actions would continue as needed over the life of this RMP. Due to longer wildfire return intervals, drier summers and other stressors on forests these outbreaks are expected to continue to be a threat at times over the next 20 years. These outbreaks may be more frequent and worsen with possible changes in climate and other related factors.

The balsam wooly adelgid, a small wingless invasive insect from Europe, has recently been causing extensive mortality on true firs in the Planning Area, primarily on portions of National Forest lands and may become a threat to BLM public lands.

The long term impacts from any of the above insects, when infestations occur, could be an increase in the severity and size of wildland fires. This risk would continue until several years have gone by and decomposition and regeneration eventually occurs, assuming the area does not experience a wild fire. These outbreaks could also result in alteration of the vegetation composition of the areas affected. This may happen as natural succession for some ecological sites, but could also result in fewer DPCs on other sites. There is a strong possibility that the result would be to open many sites to invasion by noxious weeds. Economic impacts include a loss of forest products and related jobs.

While white pine blister rust disease infects whitebark pine on public lands on Hunt Mountain, there are limited whitebark pine populations on public lands as the species is generally found at elevations above 7,000 feet. No management actions specific to controlling this disease have occurred in the past and none are planned. Sudden oak death, a disease confirmed in southwest Oregon, is not expected to be a threat to other tree or plant species found in the Planning Area. There are no native oak species in the Planning Area, but this disease is known to infect other plant species in California.

The periodic trapping of gophers (a native species) as part of replanting projects after commercial harvest or forest fires has been a regular silvicultural practice on public land when gopher populations have increased. This only occurs on plantings where gophers cause sufficient damage to new seedlings to threaten the success of the planting project. This practice would continue when needed.

Under all alternatives, the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate, or even major, if management control efforts were slow or ineffective. The eventual impacts and level of success with control efforts would be very species dependent and demonstrate the importance of an EDRR approach to managing invasive species.

Impacts from Recreation and Travel and Transportation

Globalization of air travel and the speed at which commercial shipments can now move around the world have greatly increased the risk of invasive species entering the state and Planning Area. Foreign insects, reptiles, rodents, pathogens, aquatic invertebrates, and more can now survive a trip hidden in luggage or cargo that would have taken several days or even weeks to make in the recent past.

Recreational activities and interim route networks are often a means of introducing or spreading invasive species. Noxious weeds, discussed elsewhere, are a prime example, as weed seeds are often carried in or on recreational vehicles and equipment from one area to another. Many potential invaders already in the U.S. but not yet found locally can travel via vehicle or boat into the Planning Area. Therefore, certain activities proposed under the recreation and travel and transportation programs could have a high possibility of being pathways for invasion of insect species, such as Japanese and Asian Longhorn beetles, on cargo trucks or other vehicles from out

of state. A few pieces of firewood hauled across the country in one motor home or RV could bring elm bark beetles to the Planning Area, thereby spreading Dutch elm disease.

Non-native aquatic invasive species are of special concern in Oregon and Washington and are also often unintentionally spread by the recreating public or commercial activities. These actions could introduce such species as quagga and zebra mussels that are attached to boats from other states.

Under all alternatives the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate or even major if management control efforts were slow or ineffective. The eventual impacts and level of success at control efforts would be very species dependent and demonstrate the importance of an EDRR approach to managing invasive species.

Alternative 1

Impacts same as under the No Action Alternative

- Impacts from Forestry and Woodland Products
- Impacts from Recreation and Travel and Transportation

Alternative 2

Impacts same as under the No Action Alternative

- Impacts from Forestry and Woodland Products
- Impacts from Recreation and Travel and Transportation

Alternative 3

Impacts same as under the No Action Alternative

- Impacts from Forestry and Woodland Products

Impacts from Recreation and Travel and Transportation

The increased emphasis on recreational use under the Recreation Program would presumably increase the total number of visits to public land each year and increase the risk of more visitations from recreationists from outside the Planning Area. Both of these could increase the risk of introducing new invasive species to the Planning Area. However, it would be difficult to estimate to what degree this might occur.

Alternative 4Impacts same as under the No Action Alternative:

- Impacts from Recreation and Travel and Transportation

Impacts from Forest and Woodland Products

Under the Forest and Woodlands Products Program, even though the commercial yields would be less than under Alternative 2, this Alternative treats more acres on an annual basis and could conceivably contribute to quicker recovery and healthier forest stands over time. This could have a beneficial, long-term effect in reducing the threat and potential size of future insect outbreaks that have been discussed under the No Action Alternative. It would be hard to estimate the difference in degree of this impact except to note that over the life of the RMP, the number of acres treated would be approximately 9,000 acres vs. 15,000 acres under this alternative.

Alternative 5Impacts same as under the No Action Alternative:

- Impacts from Recreation and Travel and Transportation

Impacts from Forest and Woodland Products

Under Alternative 5 the long-term cumulative impacts for the Forest and Woodland Products Program would be a noticeable increase in forest insects and disease. This would result in a greater risk of larger more intense wildfires. This, in turn, would increase the subsequent risk of soil erosion and the loss of productivity from the sites more intensely burned. Barring eventual wildfire, these insect and disease outbreaks may or may not result in alteration to the vegetation composition of the areas affected. This could happen as natural succession for some ecological sites, but might also result in opening up many other sites to invasion by noxious weeds.

c. Cumulative Impacts***No Action Alternative***

Almost any action on public land within the Planning Area has the potential to contribute to the possible establishment of an unwanted species. However, that risk would normally be a very small part of the total risk to the Planning Area from other potential sources within the Planning Area, as the BLM acreage is only five percent of the total land base. Even so, aggressive monitoring and resolution of any new discoveries are critical to prevent a manageable situation from becoming an insurmountable problem in the future, regardless of land ownership.

Under all alternatives, if current and planned coordination with other agencies continued, and BMPs and EDRR followed, the risk from a new invasive species should remain low or moderate. Regardless, there are always certain events beyond the control of the BLM. There is always a recognized risk of an unwanted species becoming established and spreading through the Planning Area and into the rest of the state or region. Once established, this would have the potential to be a significant impact to those vegetation communities, and/or terrestrial or aquatic animals, and/or their habitats most at risk, as well as have a major economic impact. The specific native species or habitats affected would be dependent on the unwanted species in question. Depending on the species, these impacts could reach significant levels within 5 to 20 years if control efforts were ineffective or unsuccessful.

Due to the very nature of preventing, controlling, and managing invasive species, it is hard to anticipate what may or may not happen over the next 20 years. However, regular monitoring and periodic surveys are being conducted in coordination with other entities. An EDRR approach to any new invasive species threat or discovery is vital to controlling potential establishment and expansion and would continue to be followed regardless of the alternative(s) chosen. In the short term, temporary negligible effects to desirable species or habitat may occur due to the need for possible chemical pesticide treatment or mechanical removal, depending on the new species posing a threat. The degree of the effect is highly dependent on whether the unwanted species has established itself and begun reproducing and spreading. If an unwanted species becomes established and then becomes a challenge to effectively control, control actions and treatments can have a serious financial impact to programs affected.

Under all alternatives, the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate, or even major, if management control efforts were slow or ineffective. The eventual impacts and level of success at control efforts would be very species dependent and demonstrate the importance of an EDRR approach to managing invasive species.

Action Alternatives

Management actions proposed under the action alternatives are not expected to significantly increase the threat of invasive species arriving or establishing themselves on public land within the Planning Area when compared to the No Action Alternative. The BLM acknowledges that there is always some potential risk from outside forces beyond the control of the agency. The use of EDRR would be a critical management action to follow to help prevent or control new infestations from establishing on public land regardless of the alternative chosen.

Under all alternatives, the short-term impacts of a new invasive species being found in the Decision Area would be negligible or minor, but the potential long-term impacts could eventually be moderate, or even major, if management control efforts were slow or ineffective. The eventual impacts and level of success at control efforts would be very species dependent and demonstrate the importance of EDRR approach to managing invasive species.

7. FISHERIES (INCLUDING SPECIAL STATUS SPECIES)

This section describes the potential direct, indirect, and cumulative impacts on fishery resources (including special status aquatic species, aquatic species habitat, and riparian habitat) from the implementation of resource management actions proposed under the various alternatives. Of special concern are impacts to special status aquatic species (see Table 2.27 in Chapter 2) and habitat. Impacts to both native and special status fish species would be the same and, therefore, the effects to both native and special status fish species will be analyzed together under one section.

a. Indicators, Methods, and Assumptions

Fisheries Indicators

Indicators for fishery resources, including riparian habitat, aquatic habitat, and special status aquatic species populations, are the same as those described in Chapter 2, Section 8-A of the Analysis of the Management Situation (AMS; BLM 2009).

Fisheries Methods

Impacts on fishery resources, including special status aquatic species and habitat, were assessed based on whether or not proposed management actions could directly or indirectly alter the quantity, quality, or availability of aquatic or riparian habitat, or cause a change to special status aquatic species or populations.

Impacts were also assessed using management direction provided in the Interim Strategy for Managing Anadromous Fish-Producing Watersheds (PACFISH; USFS and BLM 1995), the Interim INFISH (USFS and BLM 1995), and the BLM Interim Bull Trout Habitat Conservation Strategy (BLM Bull Trout Strategy; BLM 1995), including riparian goals, management objectives, and conservation areas.

Impacts were also assessed using available field survey and monitoring data, current fish distribution information, the best available scientific information, and professional judgment. Since impacts to water quality can either directly or indirectly affect fish species and aquatic and riparian habitat, the analysis of effects to water quality (See *Impacts to Water Resources*, Chapter 4 of the RMP) can be directly correlated with impacts to fishery resources.

Fisheries Assumptions

Aquatic and riparian ecosystems in the Pacific Northwest are dynamic in space and time (Reeves et al. 1995). Ecologically healthy watersheds are maintained by natural disturbances that create spatial heterogeneity and temporal variability in the physical components of the system (Naiman et al. 1992a). Natural disturbances have resulted in a mosaic of habitat conditions over time and native fish populations have adapted to this dynamic environment (Naiman et al. 1995, Reeves et

al. 1995). Aquatic and riparian ecosystems are most resilient¹ to the types of disturbances under which they have developed. Recovery from disturbance may take decades or longer, depending on its magnitude and extent, but some improvements can be expected in 10 to 20 years (Reeves 2006).

Naiman et al. (1992b) describe different disturbance regimes based on the frequency and magnitude of disturbance, and its location within a watershed (e.g., headwaters, middle, or lower reaches). Under natural disturbance regimes, a landscape would have watersheds exhibiting a range of conditions because of the asynchronous nature of large and infrequent disturbance events. More recent studies describe stream systems as complex, branching networks rather than linear systems, providing a better understanding of the ecological processes that link riparian and aquatic and headwater and downstream ecosystems (Benda et al. 2004, Fisher 1997).

These perspectives imply that aquatic ecosystems are not static. Rather, streams are invariably dynamic, and conditions vary in space and time because of periodic events such as wildfire, large storms and subsequent floods, hillslope failures, landslides, debris flows, and channel migration. An important implication is that streams and aquatic ecosystems are linked to the dynamics of both the riparian and upland communities and the watershed and physical processes that shape them.

Small streams² serve as critical source areas for high quality water. Because the spatial extent of headwater streams makes up a major portion of the total catchment area (Sidle et al. 2000, Meyer and Wallace 2001), these and adjacent upland ecosystems are important sources of sediment, water, nutrients, energy, and organic matter for downstream systems (Furniss et al. 2005, Gomi et al. 2002, Meyer et al. 2003, Wipfli et al. 2007).

Riparian ecosystems are among the most diverse, dynamic, and complex biophysical habitats on the landscape. They have many interfaces, edges, or ecozones and possess a relatively high diversity of resources. Riparian zones control energy and material flux, are sites of biological and physical interaction at the terrestrial/aquatic interface, support unique vegetation assemblages, provide critical habitats for rare and threatened species, and are refuges and source areas for a wide variety of species (Kauffman et al. 2001).

Riparian zones also play a critical role in connectivity of watersheds by providing dispersal and travel habitat and corridors across the landscape for both terrestrial and riparian-dependent species. The functions of living and dead vegetation in riparian zones include regulating bank

¹ Resiliency of an ecosystem is the degree to which the system can be disturbed and recover to a state where processes and interactions function as before (Holling 1973, Reeves et al. 1995).

² Small streams are also called headwater, intermittent, ephemeral, seasonal, low-order, and upper network streams (after Furniss et al. 2005).

erosion, providing an adequate and continuous supply of coarse woody debris to streams, and providing shade and microclimate protection. Most vertebrates (53 percent of wildlife species occurring in Oregon and Washington) use riparian zones for at least part of their activities (Kauffman et al. 2001).

Moreover, approximately 26 and 30 percent of flora in Oregon and Washington, respectively, are facultative or obligate wetland species (Natural Resource Conservation Service 2006, FEMAT 1993). These species play a critical role in the productivity, resiliency, and function of riparian zones.

Risks and Uncertainties

As with any strategy designed to protect and restore ecosystems, it is uncertain whether the Baker ARMS would achieve its goals. In fact, there are risks that it may not due to several key factors. First, we have incomplete knowledge of these highly complex systems. These knowledge gaps mean that the Baker ARMS may be missing key components. Moreover, the effectiveness of some existing components of the strategy has not been fully demonstrated. For instance, there are few examples of successful restoration at the scales of interest (i.e., typically watershed or subbasin, over long timeframes).

Besides risks and uncertainties associated with the composition of the Baker ARMS, full implementation of the strategy is not guaranteed. For example, implementation is strongly dependent on budgets and a robust, highly skilled workforce with access to extensive resource information.

Another key source of risk and uncertainty is the fact that the Baker ARMS pertains only to BLM lands within the boundaries of the Baker Resource Area. It does not apply to dam and hatchery operations off public land or activities on other federal, state, and private lands. These activities would have a large influence on the maintenance and recovery of aquatic ecosystems in the entire Pacific Northwest.

Lastly, climate change and invasive species substantially increase risks and uncertainty associated with aquatic ecosystems. These have emerged and have become increasingly important in recent years and are, therefore, described in further detail.

Climate Change

A recent review of the effects of climate change on salmon (ISAB 2007) identified the following probable consequences along the Pacific coast in coming years and decades: (1) higher temperatures will result in more precipitation falling as rain rather than snow; (2) snowpack will diminish and seasonal stream flow patterns will be altered; (3) peak river flows will likely increase; (4) summer low flows will be lower; and (5) water temperatures will continue to rise. Not all of these anticipated trends would necessarily be harmful to aquatic habitats, and many are

dwarfed by other anthropogenic factors, but they have major implications for native fishes and aquatic ecosystems.

Climate change scenarios predict an increase in large flood events, wildfires, and forest pathogen outbreaks. All of these have some potential to actually improve habitat complexity in some areas as a result of floodplain reconnection and large wood recruitment. Many effects of climate warming, however, would have negative habitat consequences for aquatic organisms.

A higher frequency of severe floods would probably result in increased egg mortality due to gravel scour. Winter snowpack would likely retreat and run off earlier in the spring (Mote et al. 2003a and 2003b), potentially impacting species whose migration to the ocean is timed to coincide with plankton blooms (Pearcy 1997). Summer base flows would probably be lower and the network of perennially flowing streams in a drainage system is likely to shrink during the summer dry period, forcing fish into smaller, wetter channels and less diverse habitats (Battin et al. 2006).

Warmer water temperatures would increase physiological stresses and lower growth rates. Summer peak temperatures may approach or exceed lethal levels for salmon and trout (Crozier and Zabel 2006; Crozier et al. 2008). Higher temperatures would also favor species that are better adapted to warmer water, including potential predators and competitors (Reeves et al. 1987).

Climate change will likely force shifts in the distribution of fish populations, affecting their ability to cope with natural disturbances, particularly drought (Battin et al. 2006). Streams located high in watersheds that historically provided some of the best habitat may no longer be accessible to migratory fishes if snowpack is reduced, thus limiting available rearing areas and access to thermal refugia in summer.

Even moderate climate-induced changes may significantly increase the risk of extirpating local populations of Chinook salmon (Crozier et al. 2008). Climate-related factors such as temperature and stream flow could affect habitat in different ways and at different scales depending on local site characteristics. Therefore, a diversity of conditions is needed for population stability (Crozier and Zabel 2006).

Existing well-connected, high-elevation habitats on public lands will be important in supporting salmon survival and recovery as the climate continues to warm (Martin and Glick 2008). Maintaining and restoring these areas is a fundamental objective of the Baker ARMS. The strategy incorporates numerous adaptation actions relevant to climate change. These include maintaining instream flows by limiting water withdrawals, reducing flood peaks by enhancing floodplain connectivity and disconnecting roads from streams, reconnecting isolated habitats by removing anthropogenic barriers, managing riparian areas to provide shade and other functions, and improving waters where aquatic habitats and water quality have been degraded. Actual impacts to aquatic ecosystems will be highly dependent on the degree to which these adaptation actions are implemented now and in the future. Without them, aquatic habitats are

likely to become increasingly isolated, simplified, and less likely to recover after significant disturbance events.

Invasive Species

Climate change effects will be compounded by those associated with aquatic and terrestrial invasive species, which are likely to worsen in the future. For example, in some large coastal rivers, non-native species have come to dominate fish assemblages and have largely replaced native fishes within the rivers' food web.

Relatively little is known of the effects of invasive riparian plants on the water quality, nutrient cycling, and the physical habitat of streams and lakes. The magnitude of these effects will depend on the effectiveness of invasive aquatic species control programs. This is influenced by the effectiveness of prevention and eradication efforts, the reinvasion rate of invasives after control actions are taken, and the speed with which native species reoccupy habitats previously dominated by the non-native species. Effective control will also depend heavily on successful public awareness programs to prevent spread of new aquatic invasives on both public and adjacent private lands.

These risks and uncertainties do not suggest there is a need to change the basic structure and components of the Baker ARMS. Instead, they reinforce and amplify the need for this type of strategy. They may also influence the details of how the Baker ARMS is implemented at subbasin, watershed, and site-specific scales.

Applicable Spatial Scales

To provide for resilient, productive, and persistent natural systems, it is important for management to conserve natural processes that constrain or influence the structure and variability in landscapes; conserve the natural variation or diversity; and account for the influence of scale by identifying and conserving patterns and key processes at multiple spatial and temporal scales (Rieman et al. 2006).

Stream habitats are heterogeneous and dynamic in longitudinal (headwaters to larger rivers), lateral (stream, floodplain, riparian area interactions) and vertical (stream channel-hyporheic interactions) dimensions (Stanford and Ward 1992). Stream and riparian habitats also vary in time in relation to disturbance (Reeves et al. 1995). Different physical processes may affect aquatic habitat at different spatial and temporal scales. Table 4-1 displays the relative frequencies and scales of selected disturbances that may affect stream channels and watersheds, producing spatially and temporally variable habitats. For example, disturbance from storms, debris flows, and/or fires are typically more frequent and occur at smaller spatial scales than climate change and tectonic processes. The probability that a particular location would be affected by disturbance at a particular time may be low, but it increases with increasing spatial scale.

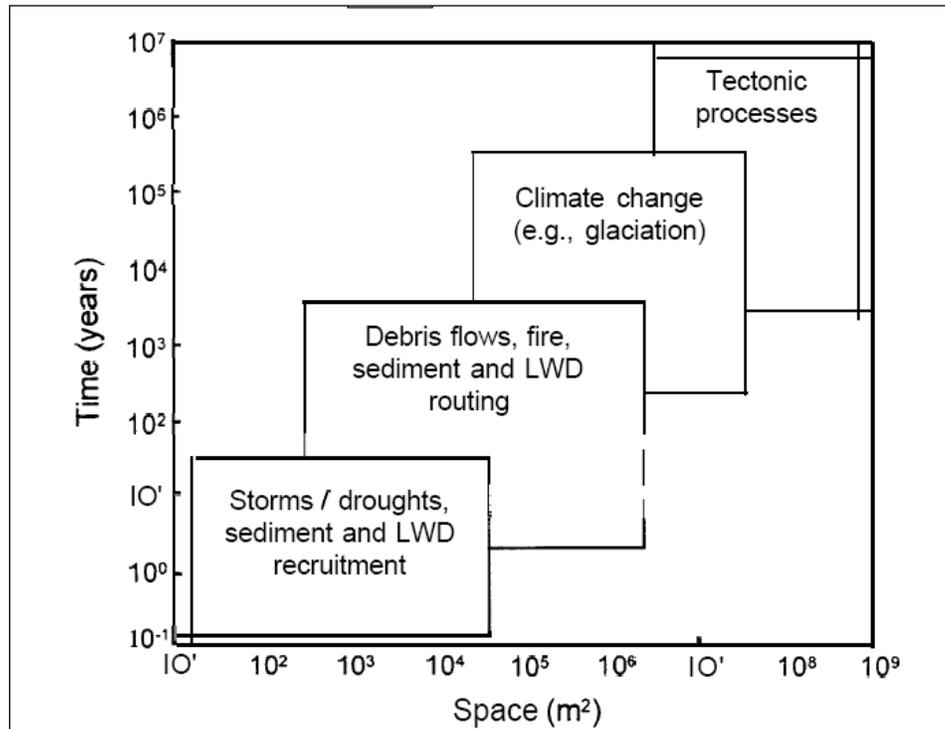


Figure 4-1. Influences on stream channels at a range of spatial and temporal scales (Montgomery and Buffington 1998).

The scale of biological response to disturbance will vary depending upon the spatial requirements (home range, territory size, migratory patterns) and the temporal constraints (e.g. generation time, migration time) of different species (Rieman et al. 2006). Similarly, the relationship between recovery time and the relative sensitivity to disturbance will vary depending on the relative scale of various habitat and stream features (Figure 4-2). For example, individual sites have a relatively high sensitivity to disturbance but have relatively short recovery periods. Conversely, watersheds have a relatively low sensitivity to an individual disturbance, but have a relatively long recovery period. Aquatic and riparian ecosystems management needs to account for processes interacting at multiple scales to establish the context for aquatic resource conservation (Fausch et al. 2002).

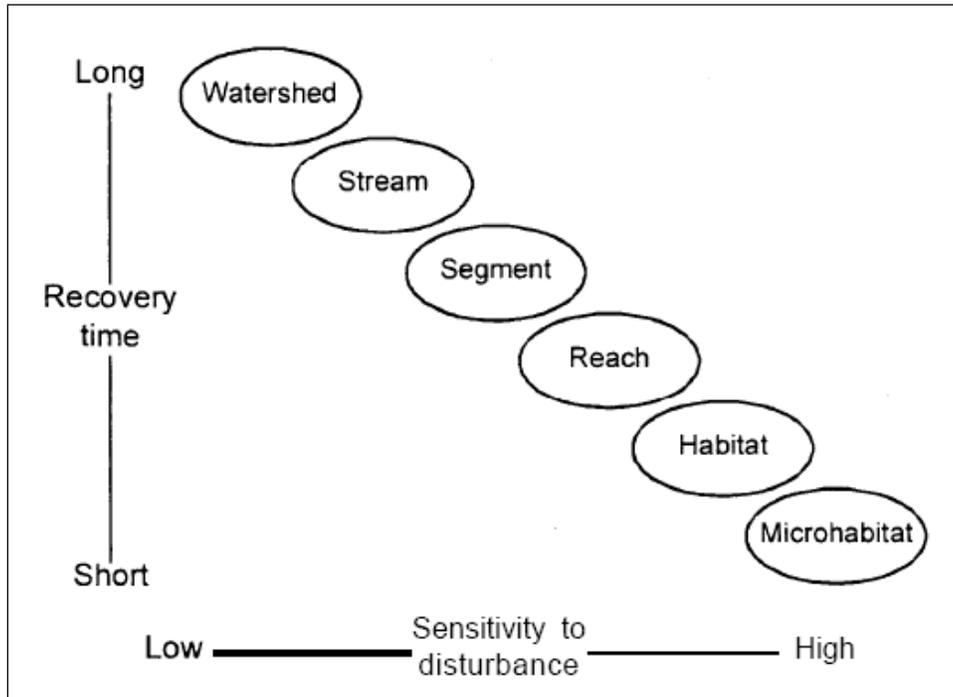


Figure 4-2. Relationship between recovery time and sensitivity to disturbance for different spatial scales (Frissell et al. 1986, Naiman 1998, Naiman et al. 1992b).

In general, desired riparian and aquatic habitat conditions apply at the landscape or watershed scale, but not the site or reach scale. The national hydrologic unit code (HUC) is the basis for defining the scales at which desired conditions apply, as well as the basis for determining the extent of potential impacts to fishery resources. The three HUC fields (or scales) most relevant to determining the extent of potential impacts to fishery resources are as follows: subbasin (4th field HUC), watershed (5th field HUC), and sub-watershed (6th field HUC). Additionally, individual project assessments often use data collected at finer scales within the sub-watershed scale, such as the drainage, valley segment, site, or stream reach scale (Figure 4-3).

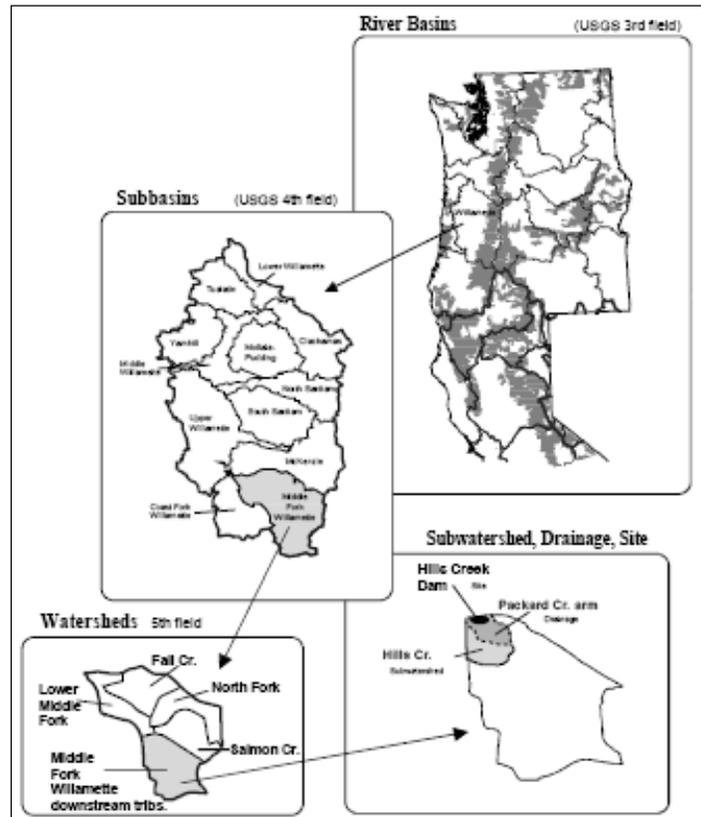


Figure 4-3. A hierarchy of spatial scales and terms for managing watersheds and aquatic and riparian resources.

Magnitude of Impacts to Fisheries

Direct and indirect effects on fishery resources are generally caused by construction and maintenance activities associated with forest health and fuels treatments, motorized and non-motorized use of roads and trails, foraging and trampling by livestock and wildlife, wildfire and fire suppression activities, energy and mineral development, recreation, seedings and plantings, and the introduction, proliferation, and treatment of invasive plants and noxious weeds. The magnitude of an effect is dependent on the scale at which the impact is detectable, the probability of a management action having a measurable effect on fishery resources, and whether or not an effect can be mitigated.

Management actions that involve ground-disturbing activities within or near riparian areas have the most potential to affect water quality and, subsequently, fishery resources through the process of sediment disturbance, transport, and delivery into waterbodies. In general, riparian vegetation provides shade from solar radiation and refugia for fish, improves the stability of streambanks, and provides habitat for aquatic and terrestrial insects, which are an important food source for fish. Therefore, management actions that affect riparian vegetation have the potential

to indirectly affect water quality and fishery resources through the alteration of stream temperature, streambank stability, and insect availability.

For the purpose of this analysis, the intensity, scale, and duration of beneficial or adverse effects on fishery resources, including native fish species and aquatic and riparian habitat, as well as special status aquatic species and habitat, is defined as follows:

Intensity

- Negligible:* No effects to fishery resources would occur, or effects to fishery resources would be immeasurable and within the range of historical or natural variability, and would not retard the attainment of desirable aquatic or riparian habitat conditions.
- Minor:* Impacts to fishery resources would be measurable, but short-term in duration and within the range of historical or natural variability; effects would not retard the attainment of desirable aquatic or riparian habitat conditions.
- Moderate:* Impacts to fishery resources would be measurable and exceed the natural or historical range of variability; effects would retard the attainment of desirable aquatic or riparian habitat conditions, but on a short-term basis. Mitigations may or may not be required to avoid impairment to fishery resources.
- Major:* Impacts to fishery resources would be measurable and exceed the natural or historical range of variability; effects would retard the attainment of desirable aquatic or riparian habitat conditions on a long-term basis over a large area; Extensive mitigations would be required to avoid impairment to fishery resources.

Spatial Scale

- Localized:* Drainage, valley segment, site, or stream reach scale.
- Subwatershed:* 6th HUC scale.
- Watershed:* 5th HUC scale.
- Subbasin:* 4th HUC scale.

Duration

- Short-term:* Anticipated effects would occur or persist within 1 to 5 years after project implementation.
- Long-term:* Anticipated effects would occur or persist for more than 5 years after project implementation.

b. Impacts to Fisheries

Impacts to fishery resources within the Planning Area would result from actions proposed under the following resource management programs:

- Water Resources

- Soil Resources
- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Special Status Species
- Fire and Fuels Management
- Lands with Wilderness Characteristics
- Facilities
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs
- WSAs
- WSRs

No Action Alternative

Impacts from Water Resources

Under the No Action Alternative, special status aquatic species and riparian habitat would be protected and enhanced by management measures designed to improve or maintain water quality, including implementation of PACFISH and the BLM Bull Trout Strategy. However, the potential for water quality improvement under the action alternatives would be slightly more than under the No Action Alternative because the action alternatives contain more specific direction and identified actions to restore and enhance aquatic and riparian conditions. Therefore, water quality conditions would continue to improve very slowly under the No Action Alternative compared with the action alternatives.

Under the No Action Alternative, short-term, negligible, adverse impacts would occur at the localized scale as result of aquatic and riparian habitat restoration efforts. Minor, beneficial, long-term effects would occur at the localized scale, but beneficial effects at the sub-watershed or watershed scale would be negligible to minor due to the large number of streams not currently meeting rangeland health standards for hydrological function. Rangeland Standards and Guidelines (BLM 1997) include the use of PFC assessments (BLM 1998).

Impacts from Soil Resources

Under the No Action Alternative, implementation of management direction contained within PACFISH and the BLM Bull Trout Strategy would prevent or minimize water quality impacts

from soil disturbance. Best Management Practices and SOPs are designed to minimize impacts from management actions to protect water quality.

Under the No Action Alternative, management direction would provide short-term, negligible to minor, beneficial effects at the localized scale to soil stability in riparian areas, and therefore to water quality, while indirectly protecting aquatic habitat and fish species by slowly maintaining or improving the condition of riparian habitat.

Impacts from Vegetative Communities

Riparian

Healthy riparian vegetation at or approaching site potential increases streamside shading and streambank stability, filters sediment and nutrients, and protects aquatic and riparian habitat. Therefore, degraded riparian vegetation quality and quantity can have an adverse effect on aquatic and riparian habitat due to a decrease in streamside shade, streambank stability, and an increase in soil erosion.

Under the No Action Alternative, having the same utilization and monitoring standards for riparian and uplands (except in the Grande Ronde Geographical Unit) would continue to degrade the condition of riparian areas where standards are not suitable or appropriate based on the site condition.

As a result, implementation of rangeland health standards would continue to make slow and generally minor improvements to riparian conditions, resulting in negligible, short-term, beneficial effects at the localized scale. Impacts from grazing within riparian areas would continue to create minor to moderate, long-term, adverse impacts to aquatic and riparian habitat at the localized scale, due to an overall decrease in streamside shade, streambank stability, and water quality.

Uplands

Under the No Action Alternative, several non-native annual grass allotments would continue to be grazed during mid-spring to mid-summer, when non-native grasses are not palatable to livestock. Grazing of non-native annual grass pastures in late spring to early fall typically concentrates livestock use in riparian areas or remnant native grass patches, which would negatively impact riparian and aquatic habitat through a decrease in streambank stability, streamside shading, and an increase in sedimentation.

Under the No Action Alternative, there are no provisions to close or impose long-term rest periods on livestock grazing to achieve vegetation objectives. In some instances, changes in season of livestock use, reducing stocking rate, and/or improving livestock distribution would not occur often enough to improve rangeland health to a desirable condition. Under this

alternative, minor to moderate, short-term, adverse effects to upland vegetation habitat from continued use would occur at the localized scale.

An increase in annual grasslands is expected under this alternative. Since the risk of wildfire would increase with an increase in annual grasslands, this would have long-term, negative impacts on water quality due to an increase in erosion. This would lead to major, localized, adverse effects and minor to moderate, adverse effects at the watershed or subbasin scale, depending on the extent and intensity of wildfires, due to a loss or removal of riparian vegetation, an increase in sedimentation, and the displacement or loss of individual fish.

In some areas, juniper is spreading due to a lack of natural wildfire. Areas with increased juniper have less understory vegetation, reduced infiltration, and increased erosion (Pierson et al. 1994). Under the No Action Alternative, no juniper reduction treatments are specified; however, juniper reduction treatments have been occurring. The expansion of juniper would continue to have a minor, adverse, long-term effect on aquatic and riparian habitat at the localized scale due to reduction in riparian vegetation, a decrease in water quality and quantity, and an increase in sedimentation in areas with increased amount of juniper.

Impacts from Invasive Species and Noxious Weeds

The proposed methods for treating invasive plants and noxious weeds under the No Action Alternative would not be effective against all weed species, which would allow for their continued spread. Impacts from even moderately effective weed management would be adverse and minor across the entire Decision Area, due to the continued spread of invasive plants and noxious weeds.

Depending on the plant species, large noxious weed infestations tend to provide inferior riparian habitat, which can indirectly degrade endemic fish species and habitat due to a reduction in the quality and quantity of water and riparian species vegetation. Herbicide treatments within or adjacent to riparian areas have the potential to adversely affect aquatic and riparian habitat, including special status fish species. Weed treatments within riparian areas can lead to minor, localized improvements where treatments occur. Such treatments would also have adverse impacts due to the slight risk to riparian and aquatic habitat where treatments occur near streams due to the use of herbicides or from ground disturbance, erosion, sedimentation, and the short-term loss of streamside shade.

However, careful management and monitoring of herbicide applications would minimize this potential. Noxious weed control measures and BMPs would reduce the potential for adverse impacts to aquatic and riparian habitat. Therefore, under the No Action Alternative, invasive plant and noxious weed management would have negligible, short-term, adverse effects at the localized scale.

Impacts from Fisheries and Special Status Species (Fish)

Under the No Action Alternative, PACFISH and the BLM Bull Trout Strategy would be implemented. These strategies establish criteria for the management, protection, and improvement of aquatic and riparian habitat, including special status aquatic species. They also provide guidance for identifying priority watersheds, but under this alternative, no conservation or restoration watersheds and actions would be identified, categorized, or prioritized. The restoration and conservation of riparian habitat can increase or maintain the quality of associated aquatic habitat and help increase or maintain special status aquatic species populations.

Under the No Action Alternative, watersheds that support Endangered Species Act (ESA)-listed fish species and/or habitat would continue to receive the majority of active management efforts, while watersheds that do not support ESA-listed fish species and/or habitat would continue to receive little to no management efforts. Aquatic and riparian habitat quality and conditions in watersheds that support ESA-listed fish species and/or habitat would be maintained and only slightly improved, while aquatic and riparian habitat quality and conditions in watersheds that do not support ESA-listed fish species and/or habitat would be maintained and mostly unimproved, with the exception of minor improvements at a localized scale.

The lack of management attention and efforts in watersheds that do not support ESA-listed fish species and/or habitat would have an indirect adverse effect on aquatic and riparian habitat at a watershed scale by not actively pursuing restoration efforts and allowing those watersheds to remain mostly unimproved.

Impacts from Wildlife

Under the No Action Alternative, closing roads or improving vegetation within or near riparian and aquatic habitat to protect or improve wildlife habitat, especially in watersheds that support special status aquatic species, would result in minor improvements to aquatic and riparian habitat at the localized scale due to an increase in upland and riparian vegetation, water quality, and a reduction in soil erosion. Therefore, adverse effects to aquatic and riparian habitat would be short-term, negligible, and localized.

Impacts from Special Status Species (Plants and Wildlife)

In general, protection of special status species would have negligible to minor, beneficial impacts on aquatic and riparian habitat. Imposing use restrictions within riparian areas, especially in watersheds that support special status aquatic species, would help to protect riparian vegetation and water quality by limiting activities that could pollute or degrade water quality.

Under the No Action Alternative, management for special status species would have a long-term, negligible (watershed scale) to minor (localized scale), beneficial effect on aquatic and riparian habitat.

Impacts from Fire and Fuels Management

Under the No Action Alternative, use of wildland fire and a limited amount of fuels treatments would continue throughout the entire Decision Area, which could result in moderate to major, long-term, adverse effects at the watershed scale because of the increased risk of wildfire due to an insufficient amount of fuels management activity under this alternative. All wildfire suppression and suppression rehabilitation activities are subject to management direction provided in the interagency Blue Mountain Province Emergency Consultation Guidance and Recommended Measures to Minimize or Eliminate Adverse Effects to ESA Listed Species. Generally, PACFISH/BLM Bull Trout Strategy RHCAs are used to protect waterbodies from the addition of fine sediment.

With the implementation of PACFISH/BLM Bull Trout Strategy RHCAs and BMPs and Rangeland Standards and Guidelines (BLM 1997) under the No Action Alternative, fuels treatments would be expected to have short-term, negligible to minor, adverse effects on aquatic and riparian habitat at the localized to sub-watershed scale due to a reduction in sediment disturbance, transport, and delivery within riparian areas.

Over the long term, a limited amount of fuels treatments under the No Action Alternative would be expected to have long-term, negligible to minor, beneficial impacts at the localized to sub-watershed scale to aquatic and riparian habitat through the protection or prevention of high intensity wildfires due to improved riparian vegetation conditions.

Impacts from Lands with Wilderness Characteristics

Generally, under the No Action Alternative, areas designated as having wilderness characteristics would be closed or limited to designated routes for motorized or mechanized access, which would result in beneficial impacts to aquatic and riparian habitat and species due to a decrease in soil disturbance and erosion, which would result in a reduction in ground-disturbing activities within or near riparian areas. Therefore, impacts to riparian and aquatic habitat and species would be beneficial, short-term, negligible, and localized.

Impacts from Facilities

Construction of new facilities and improvement or use of existing facilities (e.g., campgrounds and interpretive sites) could have localized, short-term, negligible to minor, adverse effects on aquatic and riparian habitat depending on the location, timing, and amount of sediment disturbance, transport, and delivery within or adjacent to riparian areas and waterbodies.

Negligible to minor, long-term, adverse effects to aquatic and riparian habitat and species could occur at the localized to sub-watershed scale depending on the location, timing, amount, and type of increased recreational activity associated with new or improved facilities, and their proximity to adjacent to riparian areas and waterbodies, especially in watersheds that support special status fish species.

Impacts from Forestry and Woodland Products

Actions associated with forest and woodland vegetation treatments that could affect aquatic and riparian habitat, including special status aquatic species, are discussed below. The magnitude of impacts would correspond with the number of acres treated.

Increased sedimentation on fish bearing waterbodies: The relative contribution of sediment by various forestry practices appears to be moderate from clear-cutting (i.e., higher than from selective cutting or patch-cutting), moderately high from skid trails, and moderate from site preparation. By far, sediment generation is greatest from logging roads, particularly if built near streams (Waters 1995). Increased sedimentation in streams can affect fish populations in a variety of ways, including direct mortality, reduction in suitable spawning gravels, suffocation and mortality of eggs, and displacement of individual fish. Increased sedimentation resulting from forest and woodland vegetation treatments could occur even if the treatments take place outside of designated RHCAs.

Altered stream flow regimes: Water yield increase resulting from vegetation removal could cause scouring of stream channel bottoms, decreasing fish habitat and food sources. The potential for this to occur is relatively low, considering the implementation of designated RHCAs, but localized scouring could occur.

Changes in water temperature: Increases in water temperature could occur in areas where streamside vegetation is removed, increasing the amount of sunlight reaching the water. RHCAs established by PACFISH/BLM Bull Trout Strategy standards would likely prevent vegetation treatments from occurring in these areas. If treatments were to occur in riparian areas, increased water temperatures could reduce suitable habitat for cold-water fish species, which includes all special status aquatic species. As water temperature increases, the amount of available dissolved oxygen (DO) for aquatic species decreases.

Under the No Action Alternative, harvest would continue on 25,353 acres of commercial forest lands over a 10-year period. Although moderate, short-term, adverse effects to riparian and aquatic habitat and species from timber harvest activities could occur at the localized to watershed scale, SOPs, BMPs, and PACFISH/BLM Bull Trout Strategy management direction would minimize or prevent any major, long-term, adverse effects and would maintain the spatial magnitude of any adverse effects at the localized to sub-watershed scale.

Impacts from Livestock Grazing

Livestock grazing has had a long-term, adverse effect on streams and riparian areas in eastern Oregon due to overstocking and season of use (Elmore and Beschta 1987). Because riparian areas are a narrow strip of vegetation adjacent to streams and are typically small in acreage, they tend to be included in the upland pasture. Livestock tend to preferentially graze in riparian areas, especially during the hot summer months. This can affect riparian vegetation and aquatic habitat around watering locations by trampling and grazing plants and by soil compaction, which

reduces riparian species cover and diversity, shading from solar radiation, bank stability, and nutrient trapping.

Under the No Action Alternative, grazing would be authorized on 418,601 acres with a grazing preference of 55,437 AUMs; the most acres and AUMs of any alternative.

Under the No Action Alternative, it is expected that riparian conditions would continue to deteriorate in allotments with riparian grazing without a reduction in AUMs and a change to the season of use. Changes to grazing systems would happen slowly under the No Action Alternative. Implementation and attainment of rangeland health standards would result in negligible to minor, beneficial, long-term effects on riparian condition due to a slow, but gradual, increase in riparian vegetation and a reduction in bank trampling.

However, beneficial effects from the attainment of rangeland health standards would be achieved slowly, and be short-term and localized due to the large amount of acres available to grazing and the subsequent large amount of allowable AUMs. Therefore, under the No Action Alternative, livestock grazing management would result in long-term, moderate, adverse effects to riparian and aquatic habitat and species at the watershed scale.

Legacy Effects: In the past, livestock grazing has had major, adverse effects on water quality and stream function. These effects have been gradually moderated over time as reductions in AUMs have taken place and seasons of use have been changed. In most cases, adverse effects from grazing have been long-term and at the watershed scale. Therefore, legacy effects would be a long-term concern, especially in areas with less than desirable riparian and aquatic habitat conditions.

Impacts from Minerals

Actions associated with mining that could affect aquatic and riparian habitat, including special status aquatic species populations, are as follows:

Increased sedimentation on fish-bearing waterbodies: Excess sedimentation can be the direct result of surface disturbances from mineral extraction, drilling, and facilities construction, as well as from road construction, maintenance, and use. Increased sedimentation in streams can affect fish populations in a variety of ways, including direct mortality, reduction in suitable spawning gravels, suffocation and mortality of eggs, and displacement of individual fish. Increased sedimentation resulting from mining could occur even if mining activities are conducted outside of designated RHCAs.

Introducing hazardous materials to fish-bearing waterbodies: Hazardous materials from mining activities could be released into fish-bearing waterbodies. Associated with locatable minerals extraction are mine tailings, which are a source of heavy metals. Similarly, the extraction of fluid materials can result in oil or other fluid releases, which can degrade water quality. An example of this are the releases associated with well-flow testing for geothermal power

development. Spills can also occur from mining equipment that utilizes hazardous fluids, such as gasoline and oil. The impact on fish populations depends upon the type of hazardous material released and the quantity of the release. If severe enough, fish mortality can occur and habitat can become unsuitable for aquatic life.

Altered stream flow regimes: Water yield increase resulting from vegetation removal and alteration of natural drainage could result in the scouring of stream channel beds and a decrease in fish habitat and food sources. The potential for this to occur is relatively low with the implementation of RHCAs identified in PACFISH and the BLM Bull Trout Strategy, but localized scouring could still take place.

Changes in water temperature: Increases in water temperature can occur in areas where streamside vegetation is removed, increasing the amount of direct sunlight in contact with the water (i.e., solar radiation). RHCAs identified in PACFISH and the BLM Bull Trout Strategy would likely prevent mining from occurring in these areas, but in areas where mining does or would take place within riparian areas, increased water temperatures could reduce suitable habitat for coldwater fish species by decreasing the amount of DO available for fish and other aquatic species.

Under all alternatives (no action and action), an estimated 392,222 acres of public domain and 512,715 acres of split-estate (private surface with federal mineral estate) would be available for location under the mining laws or Public Law 359. An estimated 6,400 acres of public land with privately owned mineral estate could be developed at the discretion of the owner. Under the No Action Alternative, implementation of PACFISH/BLM Bull Trout Strategy management direction would help protect riparian and aquatic habitat and special status species from long-term, major, adverse effects at the watershed scale as a result of mining activities.

However, short- and long-term, adverse effects would be expected to occur where mining activities take place within designated RHCAs or directly within stream channels, especially in watersheds or streams that support special status aquatic species. As such, the magnitude of impacts to riparian and aquatic habitat and species from mining activities varies and is directly related to the location, type, timing, and amount of mining activities within a given watershed.

Under the No Action Alternative, mining activities conducted within or adjacent to RHCAs would have minor, short-term to moderate, long-term, adverse effects on aquatic and riparian habitat and species at the localized to sub-watershed scale due to an increase in sediment and hazardous material delivery into streams, as well as an increase in water yield and stream temperature.

Impacts from Recreation

Generally, removal of vegetation, streambank trampling, and other damage to riparian and aquatic habitat from recreational use would be less in Extensive Recreation Management Areas (ERMAs; i.e., areas where extensive management and direct funding are not required to meet

objectives) than in Special Recreation Management Areas (SRMAs; i.e., areas that require extensive management and direct funding to meet objectives).

Thus, the potential for impacts would correspond inversely to the number of acres of riparian habitat within SRMAs and ERMAs. Dispersed recreational activity (non-motorized off-road use), such as fishing, hunting, hiking, and river rafting/boating, are generally low impact and result in negligible, short-term, localized impacts.

The highest potential for impacts from dispersed and motorized recreational activities would occur at high use campsites and campgrounds adjacent to waterbodies that support special status aquatic species. The magnitude of impacts to riparian and aquatic habitat and species from recreational activities varies and is directly related to the location, type, timing, and extent of recreational activities within a given watershed.

Overall, the No Action Alternative has the highest potential to adversely affect riparian and aquatic habitat and species due to a potential increase in impacts from motorized and dispersed recreational use and activity, which could result in localized, short-term, minor, adverse effects to riparian and aquatic habitat and species due to an increase in ground-disturbing activities.

Impacts from Travel and Transportation

Use of roads and trails (except for snowmobile use) can result in increased sedimentation to fish-bearing waterbodies. Increased sedimentation in streams can adversely affect fish populations in a variety of ways, including direct mortality, reduction in suitable spawning habitat, suffocation and egg mortality, and displacement of individual fish.

The greatest potential for increased sedimentation occurs in areas open to OHV use, where new OHV roads and trails are created, and where OHV use causes sediment disturbance and results in erosion. Roads and trails that parallel or cross streams are likely to have the highest impact on riparian habitat, aquatic habitat, and special status aquatic species.

Under the No Action Alternative, approximately 287,611 acres of public land would be designated as Open to OHV use, 138,042 acres of public land would be designated as Limited to OHV use, and 3,594 acres of public land would be designated as Closed to OHV use. Compared to all of the action alternatives, the No Action Alternative would designate the largest amount of acres as Open to OHV use and the least amount of acres as Closed.

Therefore, the No Action Alternative has the greatest potential to negatively affect riparian habitat, aquatic habitat, and special status aquatic species due to a potential increase in OHV use and activity. This could result in long-term, moderate, adverse effects at the sub-watershed scale due to a potential increase in sedimentation, riparian vegetation removal, streambank trampling, and an overall reduction in riparian and aquatic habitat conditions.

Impacts from Lands and Realty

Land Tenure Designations

There is a slight potential for indirect impacts to riparian and aquatic habitat and special status aquatic species from land tenure designations. If lands with special status aquatic species and/or habitat are exchanged or subject to adjustment, conservation measures outlined in this plan would no longer be enforced. However, if the BLM acquires lands with special status aquatic species and/or habitat, then protective measures would apply.

However, when compared to all of the action alternatives, the amount of public land designated for retention, acquisition, and disposal is only slightly higher under the No Action Alternative. Therefore, there would not be a considerable difference in effects to special status aquatic species and/or habitat amongst all alternatives from land tenure designations. Any impacts (adverse or beneficial) to riparian habitat, aquatic habitat, and special status aquatic species as a result of land tenure designations would be negligible on both a spatial and temporal scale, dependent on the amount of land affected by a particular designation decision.

ROWs and Use Permits

ROW authorizations and use permits are generally for activities such as road construction or facility development. Construction, road use, and heavy equipment can cause soil erosion or remove riparian vegetation resulting in degradation to riparian and aquatic habitat.

Under the No Action Alternative, all BLM-administered land would be available for ROWs, including multiple use and single use utility/travel and transportation corridors that follow existing routes, communication sites, and roads, with the exception of the following exclusion/avoidance areas: wilderness areas, WSR segments, WSAs, and ACECs. The implementation of PACFISH/BLM Bull Trout Strategy management direction would limit the type, timing, and extent of activities within designated RHCAs.

However, the No Action Alternative has the greatest potential to adversely affect riparian habitat, aquatic habitat, and special status aquatic species due to a potential increase in facility development and road construction. This could result in long-term, moderate, adverse impacts to riparian and aquatic habitat conditions at the sub-watershed scale, due to an increase in sedimentation and riparian and upland vegetation removal.

Impacts from ACECs

Management of areas with special designations can aid in the protection of riparian and aquatic habitat indirectly through the limitation of allowable activities within those areas, such as WSAs, or directly when areas, such as ACECs and RNAs, are designated to protect natural resource values.

Special designations help to protect high quality riparian and aquatic habitat, thus protecting special status aquatic species populations. Such designations provide beneficial, long-term effects to riparian habitat, aquatic habitat, and special status aquatic species populations at the localized to watershed scale, depending on the amount of land designated as an ACEC or RNA.

Protective management of stream segments found eligible and suitable for WSR designation, all of which provide high quality habitat for special status aquatic species, provide similar long-term, beneficial effects at the localized to watershed scale, depending on the length of designated stream segments.

Under the No Action Alternative, there would be 10 designated ACECs with a combined total of 48,153 acres. With the exception of Alternative 2, the No Action Alternative would designate the second smallest amount of ACEC acres compared to all other alternatives. The No Action Alternative would provide the least amount of protection to riparian habitat, aquatic habitat, and special status aquatic species, which would result in negligible to minor, long-term, beneficial effects at the local to sub-watershed scale.

Under the No Action Alternative, only 80 acres of land would be designated as an RNA under the Keating ACEC. The No Action Alternative would designate the least amount of areas and acres as RNAs. This would provide the least amount of protection to riparian and aquatic habitat and special status aquatic species, which would result in negligible, long-term, localized, beneficial effects.

Impacts from WSRs

Under the No Action Alternative, segments of the Wallowa, Grande Ronde, and Powder Rivers would retain their WSR designations. No other rivers or segments of rivers would be recommended for WSR designation. In addition, no further restrictions or limitations on motorized boating within WSR segments would be proposed or implemented.

This would provide the least amount of protection to riparian and aquatic habitat and special status aquatic species, which would result in localized, negligible, long-term, beneficial impacts.

Impacts Common to All Action Alternatives

Impacts from Fisheries and Special Status Species (Fish)

The overall potential for aquatic and riparian habitat improvement under the action alternatives would be much higher than under the No Action Alternative because under all of the action alternatives, the Baker ARMS (Appendix 2.2) would be implemented, which contains more specific direction and identified actions to restore and enhance aquatic and riparian conditions across all watersheds, and has been tailored to the Baker Resource Area's land and management capabilities.

Impacts from Vegetative Communities*Riparian*

All of the action alternatives would provide more protection and improvements to riparian vegetation than the No Action Alternative. Under all of the action alternatives, improvement of riparian conditions would be accomplished in a variety of ways, including: (1) riparian restoration (e.g., planting, seedings, re-contouring, control of undesirable vegetation); (2) modifying land uses that are identified as causal factors for riparian health degradation (e.g., livestock grazing, travel and transportation, recreational use); and (3) implementation of ARMS.

Intensive riparian monitoring (e.g., MIM; Burton et al. 2008) would be conducted in watersheds not meeting the minimum PFC standard, which would aid in determining site or channel-type specific maximum targets for riparian stubble height, stream bank alteration, and browse.

Uplands

All of the action alternatives would provide more protection and improvements to upland vegetation than the No Action Alternative. Under all of the action alternatives, forage utilization targets would be set based on the grazing system, key plant growth stage, the presence or absence of biotic crusts, and wildlife habitat needs. Following seeding projects, seeded areas would be rested from livestock grazing until site-specific rehabilitation objectives are achieved. If rehabilitation objectives are not achieved, then livestock grazing would be used to reduce fine fuels.

*Alternative 1*Impacts Same as the No Action Alternative

- Impacts from Facilities

Impacts from Water Resources

Under Alternative 1, the Baker ARMS (Appendix 2.2) would be implemented and utilized, and includes a watershed categorization and prioritization strategy. All watersheds within the Planning Area were categorized as either conservation or restoration watersheds based on several factors, including but not limited to: aquatic and riparian resource and species presence, needs, and habitat conditions within a given watershed. Most watersheds were then prioritized and ranked based partially on where the BLM has the most land ownership, and therefore where the BLM would be the most effective when conducting any restoration or conservation efforts on BLM land.

However, this would not preclude any restoration or conservation efforts from being conducted in other non-prioritized watersheds, nor would it preclude any restoration efforts being

conducted in conservation watersheds, and vice versa. Watersheds ranked as a high priority for restoration would be given preference for implementation of restoration efforts to the extent that funding allows.

Under Alternative 1, 50 miles of stream restoration work would occur every ten years to improve water quality limited streams, riparian condition, and aquatic habitat, with emphasis on improving instream fish habitat and increasing woody riparian vegetation where appropriate and feasible. Compared to the No Action Alternative, the potential for improvement under Alternative 1 is slightly higher because there is more specific direction and identified actions contained within the Baker ARMS to restore, conserve, and enhance watersheds. The Baker ARMS provides criteria for identifying and delineating RMAs.

Under Alternative 1, default RMAs would be the same as those established under PACFISH and the BLM Bull Trout Strategy. Restoration and conservation activities would provide short-term, negligible to minor, adverse effects at the localized to sub-watershed scale on riparian and aquatic habitat and species, depending on the type, scale, and intensity of ground-disturbing activities conducted within or adjacent to designated RMAs. Restoring and/or conserving riparian and aquatic habitat and special status species would also provide negligible to minor, long-term, beneficial effects by maintaining or increasing the quality of associated riparian and aquatic habitat and by maintaining or increasing the quantity of special status aquatic species.

Impacts from Soil Resources

Under Alternative 1, BMPs, Rangeland Standards and Guidelines (BLM 1997) s, and SOPs would remain the same as the No Action Alternative, but management direction and efforts would be utilized and implemented to further protect aquatic and riparian habitat from soil disturbance.

Under Alternative 1, the Baker ARMS would be implemented, which provides more clearly defined riparian and aquatic management direction than PACFISH and the BLM Bull Trout Strategy, and would lead to an increase in efforts to conserve and restore high quality aquatic and riparian habitat.

Compared to the No Action Alternative, management direction and activities under Alternative 1 would lead to an increase in the protection and improvement of aquatic and riparian habitat quality through a decrease in erosion and a reduction in potential sediment disturbance and delivery into streams. This would provide negligible to minor, short-term, beneficial effects to aquatic habitat, riparian habitat, and special status aquatic species at the localized to sub-watershed scale.

Impacts from Vegetative Communities*Riparian*

Under Alternative 1, intensive riparian monitoring would apply to streams that flow for at least one-quarter mile across public lands. The target for initial riparian stubble height would be set at 3-4 inches for streambanks that are dry and stable to moderately vulnerable to livestock impacts, and 6-8 inches for those that are highly vulnerable to livestock impacts (Clary and Leninger 2000).

This would result in minor, long-term, beneficial effects to riparian habitat, aquatic habitat, and special status aquatic species at the localized to sub-watershed scale due to a decrease in streambank trampling and an increase in riparian vegetation quality and quantity, which, in turn, would lead to a decrease in sedimentation and an increase in streamside shading.

Uplands

Under Alternative 1, more protective and restorative upland vegetation management efforts would take place compared to the No Action Alternative, including range improvement projects, livestock use restrictions, and juniper reduction projects, which would lead to improved rangeland health conditions and the attainment of rangeland health standards much faster than the No Action Alternative.

Seeding 1,500 to 2,000 acres over the life of the RMP to return annual non-native grasslands into native grasslands would improve erosion control due to the greater soil stability provided by perennial versus annual grasses. There is potential for negligible to minor impacts from ground-disturbing activities, such as seed drilling or prescribed burning for site preparation prior to drilling, but such impacts would be localized and short-term until vegetation recovers.

An increase in upland soil stability from perennial grasses would lower erosion rates and decrease the potential for sediment disturbance and delivery into waterbodies adjacent to treated areas. Reducing juniper by 500 to 2,000 acres per year would increase understory vegetation, increase infiltration, and decrease erosion within treated areas, as well as improve water quantity in areas where juniper is removed adjacent to seeps, springs, or streams.

Under Alternative 1, upland vegetation management actions would result in long-term, minor to moderate, beneficial effects to riparian and aquatic habitat at the watershed scale due to an increase in the protection and quality of riparian and aquatic habitat through the protection and improvement of adjacent upland habitat, especially in watersheds that support special status aquatic species.

Impacts from Invasive Species and Noxious Weeds

The proposed methods for treating invasive plants and noxious weeds under Alternative 1 would be more effective against all weeds species than the No Action Alternative. Impacts from effective weed management would be negligible across the entire Decision Area due to the discontinued spread of invasive plants and noxious weeds.

Under Alternative 1, SMAs (i.e., WSAs, ACECs) and habitats for special status or culturally important species, including special status aquatic species, would be a high priority for weed treatment. This would result in minor, beneficial, short-term impacts to riparian and aquatic habitat and species at the localized to watershed scale, depending on the size of treated areas, due to an increase in riparian and aquatic habitat quality.

Impacts from Fisheries and Special Status Species (Fish)

The potential for aquatic and riparian habitat improvement under Alternative 1 would be much higher than the No Action Alternative because under Alternative 1, the Baker ARMS (Appendix 2.2) would be implemented, which contains specific direction and identified actions to restore and enhance aquatic and riparian conditions, and has been tailored to the Baker Resource Area's land and management capabilities. The Baker ARMS also identifies, categorizes, and prioritizes watersheds based on their conservation or restoration needs.

Under Alternative 1, aquatic and riparian habitat management actions would be conducted where appropriate, feasible, and beneficial to native fish species, as well as for non-native fish species where it does not conflict with the habitat needs of native fish species, following the prioritization strategy and direction provided in the Baker ARMS.

Under Alternative 1, watersheds that support ESA-listed fish species and/or habitat (e.g., Chinook salmon, steelhead, and bull trout) would receive a slight to minor increase in conservation management efforts, while watersheds that do not support ESA-listed fish species and/or habitat would receive a minor to moderate increase in restoration management efforts.

Aquatic and riparian habitat quality and conditions in watersheds that support ESA-listed fish species and/or habitat would be maintained and slightly improved, while aquatic and riparian habitat quality and conditions in watersheds that do not support ESA-listed fish species and/or habitat would be increasingly maintained and substantially improved, with minor to major, long-term, beneficial impacts at the localized to watershed scale.

Impacts from Wildlife

Under Alternative 1, the impacts to riparian and aquatic habitat, including special status aquatic species, would be similar to those described under the No Action Alternative except the magnitude of both localized and watershed impacts would increase due to enhanced management

efforts to maintain or improve wildlife habitat and connectivity through road closures, land acquisitions, vegetation treatments, and changes to livestock grazing systems.

Moderate improvements to aquatic and riparian habitat at the localized scale could occur due to an increase in water quality from a reduction in soil disturbance in areas where ground-disturbing activities are reduced or restricted. This would result in beneficial, short-term impacts, which would be minor to moderate, depending on the spatial extent of area closures and restrictions, at the localized to sub-watershed scale.

Impacts from Special Status Species (Plants and Wildlife)

Under Alternative 1, impacts of special status species management on riparian and aquatic habitat would be the same as the No Action Alternative, except the magnitude of impacts would be greater due to the implementation of more specific and extensive protective management direction for special status species under Alternative 1. This would result in minor (watershed scale) to moderate (localized scale), long-term, beneficial effects on riparian and aquatic habitat.

Impacts from Fire and Fuels Management

Under Alternative 1, impacts from fire and fuels management activities would be the same as the No Action Alternative, but the intensity and magnitude of impacts would be different. Under Alternative 1, use of wildland fire and a greater amount of fuels treatment activities would result in minor to moderate, short-term, adverse effects, but long-term, minor, beneficial effects to riparian and aquatic habitat and species at the localized to sub-watershed scale, due to a decrease in catastrophic wildfire risk and its potential adverse effects to riparian areas and sediment yield into streams.

With the implementation of management direction provided in the Baker ARMS under Alternative 1, which establishes default RMA widths similar to RHCA widths established by PACFISH/BLM Bull Trout Strategy standards, fuels activities would be expected to have short-term, negligible to minor, adverse effects on aquatic and riparian habitat at the localized to sub-watershed scale due to a reduction in sediment disturbance, transport, delivery, and streamside shade within riparian areas.

Over the long term, an increase in fuels treatment activity under this alternative would be expected to have minor to moderate, beneficial impacts to aquatic and riparian habitat at the sub-watershed to watershed scale through the protection or prevention of high intensity wildfires due to improved riparian vegetation conditions.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, lands containing wilderness characteristics would be closed or limited to designated routes for motorized or mechanized access. Right-of-ways and/or developments would be excluded on lands identified with wilderness characteristics. Proposed projects and

uses would be evaluated on a case-by-case basis to ensure that impacts do not degrade wilderness characteristics.

This would result in minor to moderate, long-term, beneficial impacts to riparian and aquatic riparian habitat and species due to a reduction in ground-disturbing activities within or near riparian areas, which would result in a decrease in soil disturbance and erosion.

However, the extent and magnitude of beneficial impacts depends on the amount of land excluded or limited to motorized use and development, as well as the proximity of that land to, or its inclusion of, riparian and aquatic habitat, including waterbodies that support special status aquatic species.

Impacts from Forestry and Woodland Products

Under Alternative 1, approximately 5,000 acres per decade of forest and woodland stands would be treated, with an emphasis on restoring pre-fire suppression forest structures and improving overall tree vigor. Based on the reduction in treated acres proposed under Alternative 1, as compared to the No Action Alternative, the magnitude of impacts to riparian and aquatic habitat and species would be greatly reduced, resulting in negligible to minor, short-term, adverse effects at the localized scale.

Impacts from Livestock Grazing

Under Alternative 1, grazing would be authorized on 388,310 acres with an initial grazing preference of 47,000 AUMs, reduced to an estimated 41,500 AUMs with full implementation of the RMP. This a reduction of approximately 30,000 acres and 6,000 AUMs compared to the No Action Alternative, which would reduce grazing pressure across the entire Planning Area. However, grazing could be authorized within riparian exclosures if it can be accomplished and still meet resource objectives and temporary nonrenewable grazing use could be authorized to utilize additional production in years of favorable growing conditions, as long as doing so would not conflict with other resource management objectives.

This would increase the potential for adverse impacts to riparian and aquatic habitat and species due to livestock grazing, but the magnitude of impacts from livestock grazing under Alternative 1 would be greatly reduced due to a reduction in authorized grazing acres and AUMS, as well an increase in grazing system monitoring and adjustments.

Under Alternative 1, livestock grazing could result in short-term, minor to moderate, adverse effects to riparian and aquatic habitat and species at the localized to sub-watershed scale, depending on the amount of authorized acres and AUMs in proximity to riparian areas or within watersheds that support special status aquatic species and habitat.

Under Alternative 1, changes or adjustments to grazing systems would occur at a much faster rate than the No Action Alternative, the beneficial effects of which would be minor over the short term, but moderate over the long term at the localized to sub-watershed scale.

Impacts from Minerals

Impacts to riparian and aquatic habitat, including special status aquatic species, would be the same as the No Action Alternative. Under Alternative 1, implementation of the Baker ARMS, which includes RMAs similar to the RHCAs established by PACFISH/BLM Bull Trout Strategy standards, would help protect riparian and aquatic habitat and special status species from long-term and major adverse effects at the watershed scale as a result of mining activities.

However, short- and long-term, adverse effects would be expected to occur where mining activities take place within RMAs or directly within stream channels, especially in watersheds or streams that support special status aquatic species. As such, the magnitude of impacts to riparian and aquatic habitat and species from mining activities varies and is directly related to the location, type, timing, and amount of mining activities within a given watershed.

Under Alternative 1, mining activities conducted within or adjacent to RMAs would have between minor, short-term and moderate, long-term, adverse effects on aquatic and riparian habitat and species at the localized to sub-watershed scale due to an increase in sediment and hazardous material delivery into streams, as well as an increase in water yield and stream temperature.

Impacts from Recreation

In general, recreation management under Alternative 1 would focus on reducing recreation-related impacts to other resources, which could result in long-term, minor, beneficial impacts to riparian and aquatic habitat and species at a spatial scale that would vary depending on the amount of land affected by a reduction in recreational activity, but more than likely no greater than at the sub-watershed scale.

Compared to the No Action Alternative, recreation management under Alternative 1 has a lower potential to adversely affect riparian and aquatic habitat and species due to a potential reduction in impacts from motorized and dispersed recreational use and activity, which could result in long-term, minor, beneficial effects to riparian and aquatic habitat and species at the sub-watershed scale due to a decrease in ground-disturbing activities.

Impacts from Travel and Transportation

Under Alternative 1, 4,910 acres of public land (1 percent of the Planning Area) would be designated as Open to OHV use, 336,951 acres of public land (79 percent of the Planning Area) would be designated as Limited to OHV use, and 86,168 acres of public land (20 percent of the Planning Area) would be designated as Closed to OHV use. Alternative 1 would designate the

smallest amount of acres as Open to OHV use and the largest amount of acres as Closed to OHV use. Therefore, Alternative 1 has the smallest potential to negatively impact riparian habitat, aquatic habitat, and special status aquatic species due to a potential decrease in OHV use and activity.

This could result in short-term, negligible, adverse effects at the sub-watershed scale due to a potential decrease in sedimentation, riparian vegetation removal, and streambank trampling, which could also result in long-term, minor, beneficial impacts to riparian and aquatic habitat and species at the sub-watershed due to a potential increase in riparian and aquatic habitat quality and quantity.

Impacts from Land and Realty

Under Alternative 1, the potential for impacts to riparian and aquatic habitat and special status aquatic species from land tenure designations would be the same as the No Action Alternative.

Under Alternative 1, 71,052 acres would be designated as exclusion areas for all land use authorizations, including energy and non-energy related ROWs, communication site leases, and other permits. 42,901 acres would be designated as avoidance areas for all land use authorizations, including energy and non-energy related ROWs, communication site leases, and other permits.

In avoidance areas, land use authorizations would not be authorized unless impacts to special status aquatic species could be avoided or mitigated. New, short-term authorization or permits to use public lands for the sole benefit of private farming practices (such as crop production, pivot lines, storage of farm equipment) would not be approved.

The implementation of the Baker ARMS, which establishes RMAs in the same way PACFISH/BLM Bull Trout Strategy establishes RHCAs, would limit the type, timing, and extent of activities conducted within or adjacent to RMAs.

Compared to the No Action Alternative, under Alternative 1, there is a much lower potential to adversely impact riparian habitat, aquatic habitat, and special status aquatic species due to a potential decrease in facility development and road construction.

This could result in short-term, negligible to minor, adverse impacts to riparian and aquatic habitat conditions at the localized scale due to a decrease in sedimentation and riparian and upland vegetation removal.

Impacts from ACECs

Designating 12 ACECs (a total of 86,878 acres) and 6 areas within four ACECs as RNAs (a total of 2,984 acres) would provide a greater area of protected riparian habitat, aquatic habitat, and special status aquatic species. This would result in moderate, long-term, beneficial effects at the

sub-watershed scale due to a potential increase in limitations and restrictions on ground-disturbing activities within those areas. This, in turn, would result in an increase in riparian and aquatic habitat quality and quantity.

Impacts from WSRs

Under Alternative 1, segments of the Wallowa, Grande Ronde, and Powder Rivers would retain their WSR designations. Additionally, a segment of Joseph Creek would be identified as suitable to be recommended to Congress for designation as a WSR and a management plan for the creek segment would be developed.

Therefore, Alternative 1 would provide the highest amount of protection to riparian habitat, aquatic habitat, and special status aquatic species due to identifying a segment of Joseph Creek as suitable for inclusion into the National WSR system. This would result in moderate, long-term, beneficial effects at the sub-watershed scale due to a potential increase in limitations and restrictions on ground-disturbing activities within those areas. This, in turn, would result in an increase in riparian and aquatic habitat quality and quantity.

Alternative 2

Impacts Same as the No Action Alternative

- Impacts from Facilities

Impacts Same as Alternative 1

- Impacts from Invasive Species and Noxious Weed Management

Impacts from Water Resources

Under Alternative 2, 20 miles of stream of stream restoration work would occur every ten years to improve water quality limited streams, riparian condition, and aquatic habitat, with emphasis on improving stream function affected by high commodity use. Compared to Alternative 1, the potential for improvement under Alternative 2 is slightly lower due to a reduction in stream restoration goals every 10 years.

Although the Baker ARMS would be implemented under Alternative 2, default RMA widths would be less than those established by PACFISH/BLM Bull Trout Strategy standards, with the exception of perennial fish-bearing (Category 1) streams, which would remain the same throughout all the alternatives.

A reduction in the default RMA widths would lead to a decrease in the overall effectiveness of RMAs and result in an increase in potential short- and long-term, adverse effects to riparian and aquatic habitat.

Allowing ground-disturbing activities to be conducted within narrower RMA widths than those identified by PACFISH/BLM Bull Trout Strategy standards could result in an increase in moderate, short- and long-term, adverse effects to riparian and aquatic habitat at the localized to sub-watershed scale, depending on the type, scale, and intensity of ground-disturbing activities conducted within or adjacent to reduced default RMA widths.

Compared to Alternative 1, restoring and/or conserving a lesser amount of riparian and aquatic habitat would provide negligible to minor, beneficial, long-term effects to riparian and aquatic habitat and species by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of special status aquatic species, but at a much slower rate and to a lesser degree than Alternative 1.

Impacts from Soil Resources

Under Alternative 2, BMPs, Rangeland Standards and Guidelines (BLM 1997) s, and SOPs would remain the same as the No Action Alternative and Alternative 1, in which management direction and efforts would be utilized and implemented to further protect aquatic and riparian habitat from soil disturbance. The Baker ARMS would be implemented, which provides more clearly defined riparian and aquatic management direction than the PACFISH/BLM Bull Trout Strategy, and would lead to an increase in efforts to conserve and restore high quality aquatic and riparian habitat.

However, a reduction in default RMA widths under Alternative 2 would provide negligible to minor, beneficial effects to riparian and aquatic habitat and species by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of special status aquatic species, but at a much slower rate and to a lesser degree than Alternative 1.

Impacts from Vegetative Communities

Riparian

Under Alternative 2, intensive riparian monitoring would apply to streams that flow at least 1 mile across public lands. However, the target for initial riparian stubble height would be set at 2-3 inches for streambanks that are dry and stable and 3-4 inches for those that are vulnerable to livestock impacts (Clary and Leninger 2000), which is a lesser amount than proposed under Alternative 1. Monitoring and adaptive management would lead to changes in stubble heights if or when problems are identified.

This could result in minor to moderate, short-term, adverse effects to riparian habitat, aquatic habitat, and special status aquatic species at the localized to watershed scale due to an increase in riparian vegetation utilization, streambank trampling, and sedimentation as a result of a decrease in riparian vegetation quality and quantity and streamside shading.

Uplands

Under Alternative 2, the same protective and restorative upland vegetation management efforts proposed under Alternative 1 would also take place. However, emphasis would be put on improving perennial understory vegetation production for livestock use, restoration projects would be conducted in areas that would result in a net increase in livestock AUMs, and prescribed or use of wildland fire would be utilized to increase forage for livestock grazing.

This would lead to a widespread reduction in rangeland health conditions and would retard the attainment of rangeland health standards over the entire Planning Area.

Seeding 1,500 acres over the life of the RMP to convert annual non-native grasslands into native grasslands would improve erosion control due to the greater soil stability provided by perennial versus annual grasses. An increase in upland soil stability from perennial grasses would lower erosion rates and decrease the potential for sediment disturbance and delivery into waterbodies adjacent to treated areas. However, these seedings would only take place where doing so increases forage for livestock use, while placing a lesser emphasis on increasing habitat for wildlife species.

There is potential for negligible to minor impacts from ground-disturbing activities associated with seed drilling or prescribed burning for site preparation prior to drilling, but such impacts would be localized and short-term until vegetation recovers. However, increasing livestock forage would lead to an increase in livestock grazing, which would, in turn, result in an increase in adverse livestock impacts to aquatic habitat and species due to an increase in upland sedimentation and soil erosion.

Emphasizing juniper reduction to improve livestock forage, or where wood products are economically viable, would lead to a reduction in riparian and aquatic habitat quality and quantity due to an increase in ground-disturbing activities within or adjacent to riparian areas.

Under Alternative 2, upland vegetation management could result in long-term, moderate, adverse effects to riparian and aquatic habitat and species at the watershed scale due to a potential increase in livestock grazing, which could result in an increase in upland sedimentation and soil erosion.

As a result, this could lead to a moderate reduction in aquatic habitat quality and quantity, especially in watersheds that support special status aquatic species. However, long-term, adverse effects could be reduced if monitoring and adaptive management lead to changes in vegetation and grazing management if or when problems are identified.

Impacts from Fisheries and Special Status Species (Fish)

Under Alternative 2, aquatic and riparian habitat management actions would be conducted where appropriate, feasible, and beneficial to native and/or non-native sport fish species, with an

emphasis on increasing recreational fishing participation through the enhancement of recreational fisheries habitat, following the prioritization strategy provided in the ARMS.

However, under Alternative 2, a reduction in the default RMA widths would lead to a decrease in the overall effectiveness of RMAs and result in an increase in the potential and magnitude of short- and long-term, adverse effects to riparian and aquatic habitat, as well as special status fish species.

Allowing ground-disturbing mining activities to be conducted in closer proximity to waterbodies than what is allowable by PACFISH/BLM Bull Trout Strategy standards could result in an increase in short- and long-term, adverse effects to riparian and aquatic habitat and special status aquatic species at a spatial scale that depends on the type, scale, intensity, and timing of ground-disturbing mining activities conducted within or adjacent to reduced default RMA widths.

Under Alternative 2, watersheds that support native and non-native sport fish species and recreational fisheries would receive a large majority of conservation and/or restoration management efforts, while those watersheds that do not support both native and non-native sport fish species and/or recreational fisheries would only receive a minor amount of conservation and/or restoration management efforts.

Aquatic and riparian habitat quality and conditions in watersheds that support native and non-native sport fish species and recreational fisheries would be maintained and greatly improved, while aquatic and riparian habitat quality and conditions in watersheds that do not support both native and non-native sport fish species or recreational fisheries would only be maintained and remain substantially unimproved.

This could result in minor to moderate, long-term, adverse impacts at the sub-watershed to watershed scale to special status aquatic species that occur in sub-watersheds or watersheds that do not support non-native sport fish species or recreational fisheries due to a lack of conservation or restoration management activity in watersheds that support only special status aquatic species.

Impacts from Wildlife

Under Alternative 2, the impacts to riparian and aquatic habitat, including special status aquatic species, would be similar to those described under Alternative 1, except opportunities to decommission roads and trails to reduce resource damage would only be undertaken where they do not conflict with commodity development or recreational values.

As a result, the potential for adverse impacts to riparian and aquatic habitat and species would increase due to a decrease in management efforts to maintain or improve wildlife habitat and connectivity through road closures, land acquisitions, vegetation treatments, and changes to livestock grazing systems.

This would result in long-term, moderate, adverse impacts to aquatic and riparian habitat at the watershed scale due to a decrease in water quality from an increase in soil disturbance in areas where the amount of ground-disturbing activities is allowed to increase or continue.

Impacts from Special Status Species (Plants and Wildlife)

Under Alternative 2, impacts of special status species management on riparian and aquatic habitat would be the same as Alternative 1, except the potential for adverse impacts would be greater due to the emphasis on increasing commodity production and recreational activity on public lands.

This would result in long-term, moderate (sub-watershed scale) to major (watershed scale), adverse effects on riparian and aquatic habitat due to a potential increase in ground-disturbing activities in watersheds that support special status aquatic species, which would result in a decrease of riparian and aquatic habitat quality and quantity.

Impacts from Fire and Fuels Management

The impacts of fire and fuels management activity would be the same as Alternative 1, but the intensity and magnitude of impacts would be different. Under Alternative 2, an overall greater amount of fuels treatments would result in an increase in potential for minor to moderate, long-term, adverse effects to riparian and aquatic habitat and species at the localized to sub-watershed scale because of an increase in ground-disturbance and sedimentation as a result of a greater amount of fuels treatments proposed under this alternative.

The potential for beneficial impacts to riparian and aquatic habitat and species would also be much greater than Alternative 1 due an increase in the health and vigor of riparian and upland vegetation as a result of a greater amount of fuels treatments.

With the implementation of RMA widths that are less than those established by PACFISH/BLM Bull Trout Strategy standards, fuels activities would be expected to have a greater amount of short-term, minor to moderate, adverse effects on aquatic and riparian habitat at the sub-watershed to watershed scale, depending on the type, scale, intensity, and timing of ground-disturbing activities conducted within or adjacent to riparian areas, due to short-term increases in sediment disturbance, transport, and delivery within riparian areas.

Over the long term, an increase in fuels treatment activities under this alternative would be expected to have long-term, minor to moderate, beneficial impacts to aquatic and riparian habitat at the sub-watershed to watershed scale through the protection or prevention of high intensity wildfires due to improved riparian and upland vegetation health and conditions.

Impacts from Lands with Wilderness Characteristics

Under Alternative 2, lands containing wilderness characteristics would not be protected and ROWs and/or developments would not be excluded on lands identified with wilderness characteristics. Lands containing wilderness characteristics would be limited, but not closed, to designated routes for motorized/mechanized access. Proposed projects and uses would be allowed to occur in areas identified as having wilderness characteristics.

This would result in moderate, long-term, adverse impacts to riparian and aquatic riparian habitat and species at the sub-watershed scale due to a potential increase in ground-disturbing activities within or near riparian areas, which would result in an increase in soil disturbance and erosion.

The spatial extent and magnitude of adverse impacts would depend on the amount of land designated as having wilderness characteristics, as well as that land's proximity to, or inclusion of, riparian and aquatic habitat, especially in watersheds that support special status aquatic species.

Impacts from Forestry and Woodland Products

Under Alternative 2, approximately 5,000 acres per decade of forest and woodland stands would be treated, with an emphasis on maximizing the yield of forest products through commercial timber harvest and ensuring a future sustained yield through intensive silvicultural practices.

Due to the emphasis on maximum forest product yield through intensive silvicultural practices, forestry and woodland products management under Alternative 2 has the greatest potential to impact riparian and aquatic habitat and species due to an increase in soil erosion and shade tree removal within or adjacent to riparian areas.

Impacts to riparian and aquatic habitat, as well as special status aquatic species, would be adverse, long-term, and moderate to major at the sub-watershed to watershed scale, depending on the type, scale, intensity, and timing of ground-disturbing activities conducted within or adjacent to riparian areas.

Impacts from Livestock Grazing

Under Alternative 2, grazing would be authorized on 396,210 acres with an initial grazing preference of 47,000 AUMs, increased to an estimated 47,350 AUMs with full implementation of the RMP. This is an increase of approximately 8,000 acres and 6,000 AUMs compared to Alternative 1, and would include some currently unallocated public lands, which would increase grazing pressure across the entire Decision Area.

Livestock grazing could be authorized within riparian exclosures if it can be accomplished and still meet resource objectives and temporary nonrenewable grazing use could be authorized to

utilize additional production in years of favorable growing conditions, as long as doing so would not conflict with other resource management objectives.

This would increase the potential for adverse impacts to riparian and aquatic habitat and species due to livestock grazing, although the magnitude of impacts from livestock grazing under Alternative 2 would be much greater due to an increase in authorized grazing acres and AUMS.

Under Alternative 2, livestock grazing could result in long-term, minor to moderate, adverse effects to riparian and aquatic habitat and species at the sub-watershed to watershed scale, depending on the amount of authorized acres and AUMs in proximity to riparian areas or within watersheds that support special status aquatic species and habitat.

Under Alternative 2, changes or adjustments to grazing systems would occur at the same rate as Alternative 1, although rest periods would be discretionary under Alternative 2, the beneficial effects of which would be minor over the short term, but negligible over the long term at the sub-watershed to watershed scale.

Impacts from Minerals

Impacts to riparian and aquatic habitat, including special status aquatic species, would be similar to those identified under the No Action Alternative, with the exception that the Baker ARMS would be implemented, which would result in the beneficial impacts that were identified under Alternative 1.

However, under Alternative 2, a reduction in default RMA widths, similar to those established by PACFISH/BLM Bull Trout Strategy standards, would lead to a decrease in the overall effectiveness of RMAs result in an increase in the potential and magnitude of short- and long-term, adverse effects to riparian and aquatic habitat, as well as special status aquatic species.

Allowing ground-disturbing mining activities to be conducted in closer proximity to waterbodies than what is allowable under PACFISH/BLM Bull Trout Strategy standards could result in an increase in moderate, short- and long-term, adverse effects to riparian and aquatic habitat at the sub-watershed to watershed scale, depending on the type, scale, intensity, and timing of ground-disturbing mining activities conducted within or adjacent to reduced default RMA widths.

Impacts from Recreation

In general, recreation management under Alternative 2 would be the same as Alternative 1, but emphasis would be put on improving opportunities for commercial uses, which would result in an overall increase in commercial outfitter guides and permits. This could result in a slight increase in recreation-related impacts, especially in watersheds that support special status sport fish species.

Compared to Alternative 1, recreation management under Alternative 2 has a slightly higher potential to adversely affect riparian and aquatic habitat and species due to a potential increase in impacts from motorized and dispersed recreational use and activity, which could result in short-term, minor, adverse effects to riparian and aquatic habitat, as well as special status aquatic species, at the localized scale.

Impacts from Travel and Transportation

Under Alternative 2, 30,355 acres of public land (7 percent of the Planning Area) would be designated as Open to OHV use, 357,891 acres of public land (84 percent of the Planning Area) would be designated as Limited to OHV use, and 39,790 acres of public land (9 percent of the Planning Area) would be designated as Closed to OHV use.

Compared to Alternative 1, Alternative 2 would designate a much larger number of acres as Open to OHV use and the lowest number of acres as Closed to OHV use compared to all the other action alternatives.

Therefore, Alternative 2 has a higher potential to negatively impact riparian habitat, aquatic habitat, and special status aquatic species due to a potential increase in OHV use and activity, which could result in long-term, moderate, adverse effects at the watershed scale due to a potential increase in sedimentation, riparian vegetation removal, and streambank trampling.

Impacts from Land and Realty

Under Alternative 2, the potential for impacts to riparian and aquatic habitat and special status aquatic species from land tenure designations would be the same as the No Action Alternative. However, compared to Alternative 1, a reduction in the amount of acres designated as avoidance and exclusion areas would take place under Alternative 2.

25,236 acres would be designated as exclusion areas for all land use authorizations, including energy and non-energy related ROWs, communication site leases, and other permits. 114,499 acres would be designated as avoidance areas for all land use authorizations, including energy and non-energy related ROWs, communication site leases, and other permits.

In these areas, land use authorizations would not be authorized unless impacts to special status aquatic species can be avoided or mitigated. New, short-term authorization or permits to use public lands for the sole benefit of private farming practices (such as crop production, pivot lines, storage of farm equipment) could be approved for a term of 3 years with no chance of renewal upon expiration.

The implementation of the Baker ARMS, which would establish default RMA widths similar to those established by PACFISH/BLM Bull Trout Strategy standards, would limit the type, timing, and extent of activities within RMAs.

However, under Alternative 2, a reduction in default RMA widths would lead to a decrease in the overall effectiveness of RMAs and result in an increase in the potential and magnitude of short- and long-term, adverse effects to riparian and aquatic habitat, as well as special status aquatic species.

Allowing ground-disturbing activities to be conducted in closer proximity to waterbodies than what is allowable by PACFISH/BLM Bull Trout Strategy standards could result in an increase in adverse effects to riparian and aquatic habitat, as well as special status aquatic species, at a spatial scale that depends on the type, scale, intensity, and timing of ground-disturbing activities conducted within or adjacent to reduced default RMA widths.

Therefore, under Alternative 2, there is a higher potential to adversely impact riparian habitat, aquatic habitat, and special status aquatic species due to a potential increase in facility development and road construction, which could result in long-term, moderate, adverse effects to riparian and aquatic habitat and special status aquatic species at the sub-watershed to watershed scale due to a potential increase in sedimentation and riparian and upland vegetation removal.

Impacts from ACECs

Under Alternative 2, there would be only 7 areas designated as ACECs, for a combined total of 37,132 acres. Compared to all the other alternatives, Alternative 2 would designate the lowest number of ACEC areas and acres.

Under Alternative 2, four areas within two ACECs would be designated as RNAs for a total of 2,175 acres. Compared to all of the other action alternatives, Alternative 2 would designate the lowest number of areas and acres as RNAs.

Therefore, compared to all of the other action alternatives, Alternative 2 would provide the least amount of protection to riparian habitat, aquatic habitat, and special status aquatic species due to a lesser number of areas designated as ACECs and RNAs, which would result in negligible, long-term, beneficial effects at the localized scale due to a potential decrease in limitations and restrictions on ground-disturbing activities within those areas. This, in turn, could result in a decrease in riparian and aquatic habitat quality and quantity within those areas.

Impacts from WSRs

Under Alternative 2, segments of the Wallowa, Grande Ronde, and Powder Rivers would retain their WSR designations. However, Joseph Creek would not be recommended to Congress for designation as a WSR.

Therefore, compared to all of the other action alternatives, Alternative 2 would provide the least amount of protection to riparian habitat, aquatic habitat, and special status aquatic species due to a lesser amount of areas designated as WSR segments, which would result in negligible, long-term, beneficial effects at the localized scale due to a potential decrease in limitations and

restrictions on ground-disturbing activities adjacent to those segments. This, in turn, could result in a decrease in riparian and aquatic habitat quality and quantity adjacent to those segments.

Alternative 3

Impacts Same as the No Action Alternative

Impacts from Facilities

Impacts Same as Alternative 1

- Impacts from Invasive Species and Noxious Weeds
- Impacts from Fire and Fuels Management
- Impacts from Forestry and Woodland Products
- Impacts from WSRs

Impacts Same as Alternative 2

- Impacts from Soil Resources
- Impacts from Fisheries and Special Status Species (Fish)
- Impacts from Wildlife
- Impacts from Special Status Species (Plants and Wildlife)
- Impacts from Minerals

Impacts from Water Resources

Under Alternative 3, impacts from water resources would be the same as Alternative 2. However, under Alternative 3, 40 miles of stream restoration work would occur every ten years in order to improve water quality limited streams, riparian condition, and aquatic habitat. However, Alternative 3 would have an emphasis on restoring habitat in watersheds that support recreational fisheries and/or special status sport fish species, as well as reducing the impacts associated with an increase in recreational fishing opportunities.

Compared to Alternative 2, the potential for riparian and aquatic habitat improvement under Alternative 3 is slightly higher due to an increase in stream restoration goals every 10 years.

Conserving and/or restoring a larger amount of riparian and aquatic habitat under Alternative 3 would provide minor beneficial effects to riparian and aquatic habitat and special status aquatic species at the localized to sub-watershed scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of special status sport fish species, and at both a much higher rate and a larger extent than Alternative 2.

Impacts from Vegetative Communities*Riparian*

Under Alternative 3, intensive riparian monitoring would apply to streams that flow at least a one half of mile across public lands. However, the target for initial riparian stubble height would be set at 2-3 inches for streambanks that are dry and stable, 3-4 inches for those that are moderately vulnerable to livestock impacts, and 6-8 inches for those that are highly vulnerable to livestock impacts (Clary and Leninger 2000) or in areas where over-browsing of aspen or willow is a problem.

Compared to Alternative 1, vegetative riparian community management under Alternative 3 would result in negligible, long-term, beneficial effects to riparian habitat, aquatic habitat, and special status aquatic species at the localized to sub-watershed scale due to a slight decrease in riparian vegetation utilization and streambank trampling. This could result in a slight increase in riparian vegetation quality and quantity, due to both a slight decrease in sedimentation and a slight increase in streamside shading.

Uplands

Under Alternative 3, adverse impacts would be the same as Alternative 2, but beneficial impacts would occur at a much smaller magnitude than Alternative 1. Under Alternative 3, the same protective and restorative upland vegetation management efforts proposed under Alternative 1 would also take place.

However, under Alternative 3, perennial understory vegetation production would be improved and prescribed or use of wildland fire would be utilized in high use recreational areas. Also, 1,000 acres of seeding, the smallest amount of all the action alternatives, would take place over the life of the RMP, but only in areas that improve recreational opportunities. This would also lead to a reduction in rangeland health conditions over the entire Decision Area.

Under Alternative 3, seeding 1,000 acres over the life of the plan to return annual non-native grasslands into native grasslands would improve erosion control and decrease the potential for sediment disturbance and delivery into waterbodies adjacent to treated areas due to the greater soil stability provided by perennial versus annual grasses, but at a much slower rate and to a much smaller extent than the other action alternatives.

However, these seedings would only take place where doing so increases recreational opportunities, while placing a lesser emphasis on increasing habitat for special status species.

Under Alternative 3, upland vegetation management could result in negligible, short-term, beneficial effects to riparian and aquatic habitat and species at the localized scale, due to a potentially slight decrease in upland sedimentation and soil erosion.

Impacts from Lands with Wilderness Characteristics

Under Alternative 3, lands containing wilderness characteristics would be protected, but ROWs and/or developments would not be excluded on lands identified with wilderness characteristics. Lands containing wilderness characteristics would be limited, but not closed, to designated routes for motorized/mechanized access. Proposed projects and uses would be evaluated on a case-by-case basis to ensure that impacts do not degrade wilderness characteristics.

This would result in minor, long-term, adverse impacts to riparian and aquatic riparian habitat and species at a localized scale due to a potential increase in ground-disturbing activities within or near riparian areas, which would result in an increase in soil disturbance and erosion, but to a lesser degree than Alternative 2.

The spatial extent and magnitude of adverse impacts would depend on the amount of land designated as having wilderness characteristics, as well as the proximity of that land to, or its inclusion of, riparian and aquatic habitat, especially in watersheds that support special status aquatic species.

Impacts from Livestock Grazing

Under Alternative 3, grazing would be authorized on 380,165 acres with an initial grazing preference of 46,320 AUMs, reduced to an estimated 35,500 AUMs with full implementation of the RMP. This is a decrease of approximately 8,000 acres and 6,000 AUMs compared to Alternative 1.

Livestock grazing would be authorized within riparian enclosures if it can be accomplished and still meet resource objectives, while temporary nonrenewable grazing use would be authorized only in limited circumstances (i.e., as a tool to implement specific vegetation treatments) or for trailing through. Also, livestock grazing would not be authorized in I and M allotments during September 1 to November 30 in order to reduce conflicts between grazing and big game hunting.

Livestock grazing would be removed or reduced in areas of high recreational value if there are persistent conflicts with recreational uses or users. Compared to Alternatives 1 and 2, this would decrease grazing pressure across the entire Planning Area, but would only slightly decrease the potential for and the magnitude of adverse impacts to riparian and aquatic habitat and species compared to Alternative 1.

Therefore, under Alternative 3, adverse and beneficial impacts from livestock grazing on riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, except the magnitude of and potential for adverse impacts under Alternative 3 would be slightly smaller and lower than Alternative 1, while the magnitude of and potential for beneficial impacts under Alternative 3 would be slightly larger and higher than Alternative 1.

Nonetheless, under Alternative 3, livestock grazing could result in short-term, minor to moderate, adverse effects to riparian and aquatic habitat and species at the localized to sub-watershed scale, depending on the amount of authorized acres and AUMs in proximity to riparian areas or within watersheds that support special status aquatic species and habitat.

Impacts from Recreation

In general, recreation management under Alternative 3 would be the same as Alternative 2; therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 2, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts. This could result in short-term, minor, adverse effects to riparian and aquatic habitat, as well as special status aquatic species, at the localized scale.

Impacts from Travel and Transportation

Under Alternative 3, 30,355 acres of public land (7 percent of the Planning Area) would be designated as Open to OHV use, 356,655 acres of public land (83 percent of the Planning Area) would be designated as Limited to OHV use, and 41,026 acres of public land (10 percent of the Planning Area) would be designated as Closed to OHV use.

Compared to Alternative 2, Alternative 3 would designate the same amount of acres as Open to OHV use, a slightly lower amount of acres as Limited to OHV use, and a slightly higher amount of acres as Closed to OHV use.

Therefore, under Alternative 3, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 2, but at a slightly smaller magnitude and with a slightly lower potential of adverse impacts. This could result in long-term, moderate, adverse effects at the watershed scale, due to a potential increase in sedimentation, riparian vegetation removal, and streambank trampling.

Impacts from Land and Realty

Compared to Alternative 2, an increase in the amount of acres designated as exclusion areas would take place under Alternative 3, although the same amount of acres (158,013) would be designated as avoidance areas. In these areas, land use authorizations would not be authorized unless impacts to special status aquatic species can be avoided or mitigated.

However, new, short-term authorization or permits to use public lands for the sole benefit of private farming practices (such as crop production, pivot lines, storage of farm equipment) would not be approved.

Despite the differences between Alternatives 2 and 3, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 2, but at a slightly smaller

magnitude and with a slightly lower potential of adverse impacts due to a slight increase in land use restrictions.

This could result in long-term, moderate, adverse effects to riparian and aquatic habitat and special status aquatic species at the sub-watershed to watershed scale due to a potential increase in sedimentation and riparian and upland vegetation removal.

Impacts from ACECs

Under Alternative 3, 12 areas would be designated as ACECs for a combined total of 49,579 acres. Compared to Alternative 1, Alternative 3 would designate the second highest amount of ACEC areas and acres. Impacts from RNAs would be the same as under Alternative 1.

Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, but at a slightly smaller magnitude and with a slightly lower potential for beneficial impacts, due to a smaller amount of acres designated as ACECs under Alternative 3.

This could result in moderate, long-term, beneficial effects at the sub-watershed scale due to a potential increase in limitations and restrictions on ground-disturbing activities within those areas. This, in turn, would result in an increase in riparian and aquatic habitat quality and quantity within those areas.

Alternative 4

Impacts Same as Alternative 1

- Impacts from Wildlife
- Impacts from Special Status Species (Plants and Wildlife)
- Impacts from Fire and Fuels Management
- Impacts from Facilities
- Impacts from Minerals
- Impacts from Travel and Transportation
- Impacts from Land and Realty
- Impacts from ACECs
- Impacts from WSRs

Impacts from Water Resources

Under Alternative 4, 80 miles of stream restoration work would occur every ten years to improve water quality limited streams, riparian condition, and aquatic habitat in watersheds that only support native and/or special status aquatic species.

Additionally, under Alternative 4, default RMA widths would be wider than those established by PACFISH/BLM Bull Trout Strategy standards, with the exception of Category 1 and 3 streams, which would remain the same as those established by PACFISH/BLM Bull Trout Strategy.

An increase in default RMA widths for Category 2 and 4 streams would lead to an increase in the overall effectiveness of default RMA widths and result in a decrease in potential short- and long-term, adverse effects to riparian and aquatic habitat from ground-disturbing activities conducted within or adjacent to riparian areas.

Compared to all other alternatives, the potential for riparian and aquatic habitat improvement is the highest under Alternative 4 due to a much larger number of stream restoration goals every 10 years and from the implementation of default RMA widths that are similar to those established by PACFISH/BLM Bull Trout Strategy standards for Category 1 and 3 streams, and an increase in default RMA widths for Category 2 and 4 streams.

Conserving and/or restoring a larger amount of riparian and aquatic habitat for native and/or special status aquatic species under Alternative 4 would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed to subbasin scale by maintaining or increasing both the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species at a much higher rate and to a larger extent than all the other alternatives.

Impacts from Soil Resources

Same as Alternative 1, except an overall reduction in livestock stocking rates would be set and summer grazing (i.e., hot season grazing) would not be allowed. High intensity, short duration livestock grazing systems would not be authorized in areas susceptible to heavy grazing.

Compared to Alternative 1, management direction and activities under Alternative 4 would lead to an increase in the protection and improvement of aquatic and riparian habitat quality through a decrease in erosion and a reduction in potential sediment disturbance and delivery into streams. This would provide minor to moderate, long-term, beneficial effects to aquatic habitat, riparian habitat, and special status aquatic species at the localized to sub-watershed scale.

Impacts from Vegetative Communities

Riparian

Under Alternative 4, intensive riparian monitoring would apply to streams that flow for at least one-eighth of a mile across public lands, while the target for riparian stubble height would be set at 6-8 inches for all stream banks regardless of degree of vulnerability to livestock impacts.

Compared to Alternative 1, impacts from vegetative riparian community management under Alternative 4 would result in minor to moderate, long-term, beneficial effects to riparian habitat,

aquatic habitat, and special status aquatic species at the localized to sub-watershed scale due to an overall decrease in riparian vegetation utilization and streambank trampling, which could result in an increase in riparian vegetation quality and quantity due to an overall decrease in sedimentation and increase in streamside shading.

Uplands

Under Alternative 4, the intensity of adverse impacts would be much lower than Alternative 1, while beneficial impacts would occur at a much higher magnitude than Alternative 1. Under Alternative 4, more protective and restorative upland vegetation management efforts would be implemented compared to Alternative 1.

Forage utilization targets would be set for light use (21-40 percent) and 1,500-3,000 acres of seeding, the largest amount of all the action alternatives, would take place over the life of the RMP, this would lead to a widespread improvement in rangeland health conditions and attainment of rangeland health standards at a much faster rate than any of the other alternatives.

Therefore, under Alternative 4, upland vegetation management could result in moderate, long-term, beneficial effects to riparian and aquatic habitat and species at the localized to sub-watershed scale due to an overall decrease in upland sedimentation and soil erosion.

Impacts from Invasive Species and Noxious Weeds

Same as Alternative 1, with an emphasis on increased EDRR efforts in order to keep areas of desired native vegetation intact.

Impacts from Fisheries and Special Status Species (Fish)

Under Alternative 4, management activities would be promoted that maintain or improve existing aquatic and/or riparian habitat in conservation watersheds, and that improve or restore aquatic and/or riparian habitat in restoration watersheds, but with an emphasis on native and/or special status aquatic species only.

This would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed to subbasin scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species at a much higher rate and to a larger extent than all the other alternatives.

Impacts from Lands with Wilderness Characteristics

Under Alternative 4, lands containing wilderness characteristics would be closed to motorized use and limited to designated routes for mechanized use.

This would result in both minor, short-term and negligible, long-term beneficial impacts to riparian and aquatic riparian habitat and species due to a potential decrease in ground-disturbing activities within or near riparian areas, which would result in an overall decrease in soil disturbance and erosion.

The spatial extent and magnitude of adverse impacts would depend on the amount of land designated as having wilderness characteristics, as well as that land's proximity to, or inclusion of, riparian and aquatic habitat, especially in watersheds that support special status aquatic species.

Impacts from Forestry and Woodland Products

Under Alternative 4, approximately 75,000 acres of forest and woodland stands would be treated per decade, with an emphasis on restoring pre-fire suppression forest structures and improving overall tree vigor. Treatment areas would be selected based on their benefit to overall watershed and landscape values (e.g., wildlife habitat structure and connectivity, water quality, and soil conservation).

Adverse impacts would be the same as Alternative 1. However, due to the emphasis on selecting treatment areas based on their benefit to overall watershed and landscape values, including water quality, there is potential for beneficial, long-term, minor, impacts to riparian and aquatic habitat and species at the localized to sub-watershed scale under Alternative 4, due to a potential increase in riparian and aquatic habitat quality and quantity.

Impacts from Livestock Grazing

Under Alternative 4, grazing would be authorized on 334,260 acres, with an initial grazing preference of 42,150 AUMs, which would then be reduced to an estimated 30,700 AUMs with full implementation of the RMP. Alternative 4 proposes the second-lowest amount of grazing acres and AUMS.

All leases and newly acquired lands within the Grande Ronde ACEC would not be available for grazing. Riparian exclosures would remain ungrazed and be removed from permit/lease, while temporary nonrenewable grazing use would be authorized only in limited circumstances (i.e., as a tool to implement specific vegetation treatments) or for trailing through. Evaluations for class I allotments would be the same as Alternative 1, except that instead of a 5-year rest period, grazing would not be authorized in a non-compliant pasture for the life of the RMP. Additionally, where rangeland health standards are met, increases in grazing use would not be considered.

Alternative 4 would greatly decrease grazing pressure across the entire Planning Area, which would greatly decrease the potential for and the magnitude of adverse impacts to riparian and aquatic habitat and species.

Therefore, under Alternative 4, adverse and beneficial impacts from livestock grazing on riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, except the magnitude of and potential for adverse impacts under Alternative 4 would be much smaller and lower than Alternative 1; while the magnitude of and potential for beneficial impacts under Alternative 4 would be much larger and higher than Alternative 1.

This could result in short-term, minor to moderate, adverse effects to riparian and aquatic habitat and species at the localized to sub-watershed scale, depending on the amount of authorized acres and AUMs in proximity to riparian areas or within watersheds that support special status aquatic species and habitat.

However, under Alternative 4, changes or adjustments to grazing systems would occur at a much faster rate than Alternative 1, the beneficial effects of which would be minor over the short term but moderate over the long term at both the localized to sub-watershed scale.

Impacts from Recreation

In general, recreation management under Alternative 4 would be the same as Alternative 1, except there would be an emphasis on low-impact recreational activities (non-motorized/mechanized). Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

This could result in long-term, minor, beneficial effects to riparian and aquatic habitat and species at the sub-watershed scale due to a decrease in ground-disturbing activities.

Alternative 5

Impacts Same as Alternative 1

- Impacts from Wildlife
- Impacts from Special Status Species (Plants and Wildlife)
- Impacts from Fire and Fuels Management
- Impacts from Facilities
- Impacts from Minerals
- Impacts from Travel and Transportation
- Impacts from Land and Realty
- Impacts from ACECs
- Impacts from WSRs

Impacts Same as Alternative 4

- Impacts from Soil Resources

- Impacts from Vegetative Communities (Uplands)
- Impacts from Lands with Wilderness Characteristics

Impacts from Water Resources

In general, water resources management under Alternative 5 would be the same as Alternative 4, except there would be an emphasis on low-impact and less intrusive restoration activities.

Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

This would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species.

Impacts from Vegetative Communities

Riparian

In general, riparian vegetative community resource management under Alternative 5 would be the same as Alternative 4, except there would be no grazing on 303(d)-listed streams. Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts in riparian areas along 303(d)-listed streams.

This could result in minor to moderate, long-term, beneficial effects to riparian habitat, aquatic habitat, and special status aquatic species at the localized to sub-watershed scale due to an overall decrease in riparian vegetation utilization streambank trampling and sedimentation, which could result in an increase in riparian vegetation quality and quantity and streamside shading.

Impacts from Invasive Species and Noxious Weeds

In general, impacts would be the same as Alternative 4, except restoration activities would utilize non-ground-disturbing techniques where active restoration is necessary, the use of native plant materials would be required, and natural recovery of the desirable plant community would be encouraged.

Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts, and with an emphasis on increased EDRR efforts in order to keep areas of desired native vegetation intact.

Impacts from Fisheries and Special Status Species (Fish)

In general, impacts would be the same as Alternative 4, except there would be an emphasis on utilizing natural processes and less obtrusive methods of resource protection and restoration would be used. Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

This would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed to subbasin scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species at a much higher rate and to a larger extent than all the other alternatives.

Impacts from Forestry and Woodland Products

In general, impacts would be the same as Alternative 4, except there would be a substantial reduction in the amount of treated acres and an emphasis on only non-commercial methods. Therefore, adverse impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential, and with a substantially higher potential for beneficial impacts.

This could provide beneficial, long-term, minor impacts to riparian and aquatic habitat and species at the localized to sub-watershed scale under Alternative 5 due to a potential increase in riparian and aquatic habitat quality and quantity.

Impacts from Livestock Grazing

In general, impacts would be the same as Alternative 4. However, Alternative 5 proposes the lowest number of grazing acres (263,915) and AUMS (35,760 initial preference reduced to 22,500). Additionally, all allotments with 303(d)-listed streams (water quality impaired streams) would not be available for grazing.

Compared to all of the other alternatives, Alternative 5 would greatly decrease grazing pressure across the entire Planning Area, which would also greatly decrease the potential for and the magnitude of adverse impacts to riparian and aquatic habitat and species.

Under Alternative 5, adverse and beneficial impacts from livestock grazing on riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, except the magnitude of and potential for adverse impacts under Alternative 5 would be much smaller and lower than Alternative 4; while the magnitude of and potential for beneficial impacts under Alternative 5 would be much larger and higher than Alternative 4.

This could result in short-term, negligible to minor, adverse effects to riparian and aquatic habitat and species at the localized to sub-watershed scale, depending on the amount of authorized acres

and AUMs in proximity to riparian areas or within watersheds that support special status aquatic species and habitat.

Impacts from Recreation

In general, impacts would be the same as Alternative 4, except there would be no increase in recreational amenities and facilities at high use campsites and campgrounds. Due to the emphasis on low-impact recreational activities (non-motorized/mechanized), there would be a reduction in impacts in areas where recreation is having a negative impact.

Impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts. This could result in long-term, minor, beneficial effects to riparian and aquatic habitat and species at the sub-watershed scale due to a decrease in ground-disturbing activities.

Alternative 5a

Impacts from Water Resources

Under 5a, many of the management actions dealing with livestock would not be applicable. It would be expected that water resources would benefit in the long term from an absence in grazing due to an increase in vegetative cover and a decrease in erosion and sedimentation.

Alternative 5a would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed to subbasin scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species.

Impacts from Soil Resources

Under 5a, many of the management actions dealing with livestock would not be applicable. Generally, it would be expected that soil resources would benefit in the short term from a lack of grazing due to an increase in vegetative cover and a decrease in erosion and sedimentation. There is also potential for a long-term increase in non-native annual vegetation in sagebrush communities that could lead to an increase in fire frequency and intensity, which could lead to an increase in sedimentation and erosion.

Overall, the absence of grazing under Alternative 5a would lead to a short-term increase in the protection and improvement of aquatic and riparian habitat quality as a result of a short-term decrease in erosion and a reduction in sedimentation and sediment delivery into streams.

However, a potential increase in fire frequency and intensity could lead to a long-term decrease in riparian and aquatic habitat quality and quantity due to a long-term increase in sedimentation and erosion in annual grassland areas.

Alternative 5a would provide minor, short-term, beneficial effects across the Decision Area and moderate, long-term, adverse effects in annual grassland areas to riparian and aquatic habitat and special status aquatic species at the sub-watershed scale.

Impacts from Vegetative Communities

Riparian

Same as *Impacts to Water Resources* under Alternative 5a.

Uplands

Same as *Impacts to Soil Resources* under Alternative 5a.

Impacts from Livestock Grazing

Impacts would be similar to Alternative 5. However, under Alternative 5a, domestic livestock grazing would not be allowed. This would provide short- and long-term, beneficial impacts to riparian and aquatic habitat quality and quantity through a decrease in sediment disturbance and erosion and an increase in streambank stability. Rangeland health standards would be achieved most quickly under this alternative.

Compared to Alternative 5, Alternative 5a would remove grazing pressure across the entire Planning Area, which would remove any potential of adverse impacts to riparian and aquatic habitat and species. Therefore, under Alternative 5a, the absence of livestock grazing would result in major, long-term, beneficial impacts on riparian and aquatic habitat and special status aquatic species at the watershed scale due to a long-term increase in riparian and aquatic habitat quality and quantity, as well as special status aquatic species quantity.

c. Cumulative Impacts

The effects of management activities on fishery resources can be cumulative. A cumulative impact results from the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions that take place over a long period.

Special status aquatic species populations, especially fish, are not restricted by land ownership. Many fish populations migrate up and downstream depending on their lifecycle using aquatic habitats independent of land ownership. Aquatic habitat management outside of BLM-administered lands is often critical for the health of aquatic species populations within BLM lands.

Additionally, water quality on BLM land is often inherited from sources upstream or upslope and outside of BLM-administered lands. Land management activities both outside and within BLM-administered lands are important for special status aquatic species, especially fish.

Cumulative impacts on special status aquatic species, including fish, would be those impacts where activities outside of BLM lands combine with actions on BLM-administered lands to affect riparian and aquatic habitat and special status aquatic species. Many of the cumulative actions and events regarding water quality and discussed in the *Impacts to Water Resources* section would also have cumulative impacts on riparian and aquatic habitat and special status aquatic species.

The key steps in a cumulative impacts analysis are to identify the beneficial uses of concern, determine the cause-effect relationships of the proposed action on the beneficial uses, and determine the magnitude and significance of the environmental consequences resulting from the proposed action in relation to other past, present, and future actions. The significance of effects should be determined based on context and intensity. Factors that would be used to define context and intensity of effects include their magnitude, geographic extent, duration, and frequency.

The USFS controls much of the land within the Planning Area, primarily those at higher elevations. The majority of USFS land is in forested ecosystems, as opposed to the large amount of rangeland ecosystems under BLM management. The USFS also typically manages the headwaters of most watersheds within the Planning Area, whereas the BLM typically manages the lower reaches of the watersheds in which it has ownership.

The USFS uses similar BMPs or Standards and Guidelines to mitigate negative effects from management activities and typically follows the same laws and regulations that protect, conserve, and restore riparian and aquatic habitat and species. However, the BLM's ability to influence or achieve desirable conditions within a given watershed is limited by scattered and minority BLM land ownership in most watersheds within the Planning Area.

Management actions that have or can have an effect on the ability to achieve water quality and watershed health goals and/or desired conditions include past, present, or future ground-disturbing activities within a given sub-watershed, watershed, or subbasin. This includes, but is not limited to, activities that have already taken place in the past or would be expected to take place in the near future on BLM-administered lands and lands adjacent to BLM-administered lands, such as grazing, timber harvest, mining, wildland and prescribed fire, road and trail use and development, and irrigation and dam development. The largest degradations to riparian and aquatic habitat and water quality are most likely to occur from activities conducted on private lands, which are not subject to the same environmental reviews as federal and state managed lands.

Changes in land management over the last 20 years have led to improvements in riparian and aquatic habitat conditions on private lands. The Natural Resource Conservation Service (NRCS), soil and water conservation districts, ODFW, and watershed councils, along with many other local, state, and federal agencies and entities, all work cooperatively with private landowners to improve the quality and quantity of riparian and aquatic habitat on private lands. However, many improvements on private lands depend solely on landowner approval and cooperation, so adverse impacts to water quality and stream health would continue in areas where landowner approval and cooperation is not achievable.

Past management actions on or adjacent to BLM lands that have reduced and/or fragmented the habitat for special status fish species include the construction of dams, including Mason Dam, Thief Valley Dam, and the Hells Canyon Dam complex, the construction and maintenance of Interstate 84, and other county, federal, state, and private landowner road construction and maintenance. Past management actions that have modified special status fish species habitat include livestock grazing, logging, mining, recreation, road and building construction, wildfire and fire suppression activities, prescribed fire activity, and noxious weed treatments.

All present and future management actions on lands adjacent to BLM-administered land would be the same under all alternatives. Present and future management actions that affect riparian and aquatic habitat, as well as special status fish species, include livestock grazing, logging, mining, road and building construction, wildfire and suppression activities, prescribed fire activity, noxious weed treatments, dam construction or improvements, and renewable energy development. All of these actions would have both short- and long-term impacts on riparian and aquatic habitat, as well as special status fish species.

No Action Alternative

Past management actions have resulted in major adverse effects to riparian and aquatic habitat quality and quantity, as well as special status aquatic species. Riparian and aquatic habitat conservation measures implemented on BLM-administered lands and adjacent lands within the same watersheds could increase the quality and quantity of riparian and aquatic habitat and protect special status aquatic species populations.

Under the No Action Alternative, these measures include the requirements of the ESA and management direction provided in the Interior Columbia Basin Ecosystem Management Project Strategy (USFS and BLM 2003), PACFISH, and the BLM Bull Trout Strategy. An increase in riparian vegetation would be the most useful change to improve water quality and streambank stability. However, changes to improve these effects would be slowest under the No Action Alternative.

Since this alternative does not include a specific direction to improve stream conditions, particularly riparian vegetation, it is expected that very few short-term improvements would occur on BLM-administered lands. Over the long term, minor improvements in the function of

water quality-impaired streams or streams not meeting rangeland health standards due to grazing would be expected from changes in grazing practices over time.

However, it is unlikely that changes would be large enough to improve water quality and riparian habitat on degraded streams to where they would meet desired conditions, management objectives, and/or beneficial uses.

Alternative 1

Under Alternative 1, 50 miles of stream of stream restoration work would occur every ten years to improve water quality limited streams, riparian condition, and aquatic habitat, with emphasis on improving instream fish habitat and increasing woody riparian vegetation where appropriate and feasible. Compared to the No Action Alternative, the potential for improvement under Alternative 1 is slightly higher because there is more specific direction and identified actions contained within the Baker ARMS to restore and conserve watersheds.

Restoration and conservation activities would provide short-term, negligible to minor, adverse effects on riparian and aquatic habitat and species. Restoring and/or conserving riparian and aquatic habitat and special status species would also provide negligible to minor, beneficial effects by maintaining or increasing the quality of associated riparian and aquatic habitat and by maintaining or increasing the quantity of special status aquatic species.

Upland vegetation management actions would result in long-term, minor to moderate, beneficial effects to riparian and aquatic habitat at the watershed scale due to an increase in the protection and quality of riparian and aquatic habitat through the protection and improvement of adjacent upland habitat, especially in watersheds that support special status aquatic species.

Watersheds that support ESA-listed fish species and/or habitat would receive a slight to minor increase in conservation management efforts, while watersheds that do not support ESA-listed fish species and/or habitat would receive a minor to moderate increase in restoration management efforts.

Aquatic and riparian habitat quality and conditions in watersheds that support ESA-listed fish species and/or habitat would be maintained and slightly improved, while aquatic and riparian habitat quality and conditions in watersheds that do not support ESA-listed fish species and/or habitat would be increasingly maintained and substantially improved, with minor to major, long-term, beneficial impacts at the localized to watershed scale.

Fuels activities would be expected to have short-term, negligible to minor, adverse effects on aquatic and riparian habitat due to sediment disturbance, transport, and delivery within riparian areas as a result of site preparation activities. Over the long term, however, an increase in fuels treatment activity under this alternative would be expected to have long-term, minor to moderate, beneficial impacts to aquatic and riparian habitat through the protection or prevention of high intensity wildfires due to improved riparian vegetation health and vigor.

Changes or adjustments to grazing systems would occur at a much faster rate than the No Action Alternative, the beneficial effects of which would be minor over the short term but moderate over the long term.

Compared to the No Action Alternative, recreation management under Alternative 1 has a lower potential to adversely affect riparian and aquatic habitat and species due to a decline in impacts as a result of a reduction in motorized and dispersed recreational use and activity.

Alternative 1 would provide the highest amount of protection to riparian habitat, aquatic habitat, and special status aquatic species due to an increase in areas designated as SMAs (i.e., ACECs, RNAs, and WSRs), which would result in moderate, long-term, beneficial effects due to a potential increase in limitations and restrictions on ground-disturbing activities within those areas. This, in turn, would result in an increase in riparian and aquatic habitat quality and quantity within those designated areas.

Overall, additional minor to moderate, short-term improvements to aquatic and riparian habitat quality and quantity would be expected under this alternative. Compared to the No Action Alternative, the primary changes are from changes in livestock management, riparian stubble height requirements differing from upland standards, closing much of the area to cross-country travel, the additional amount of stream miles for restoration and potential improvements or decommissioning of roads impacting streams.

Fifty miles of restoration of streams and riparian areas would occur over a 10-year period for a moderate improvement in riparian condition. In addition long-term protection of land from expansion of ROWs and the road network would also be important in keeping the stream/road connectivity down to protect streams from elevated levels of fine sediment.

The restoration emphases across many resources all help with lowering the delivery of sediment to streams and improving riparian areas, particularly riparian vegetation. Due to the beneficial changes in management discussed above, Alternative 1 would result in a moderate to major, beneficial impact to water resources in the long term.

Alternative 2

Under Alternative 2, 20 miles of stream of stream restoration work would occur every ten years to improve water quality-limited streams, riparian condition, and aquatic habitat, with emphasis on improving stream function affected by high commodity use. Compared to Alternative 1, the potential for improvement under Alternative 2 is slightly lower due to a reduction in stream restoration goals every 10 years.

Although the Baker ARMS would be implemented under Alternative 2, default RMA widths would be less than those established by PACFISH/BLM Bull Trout Strategy standards, with the exception of Category 1 streams, which would remain the same throughout all the alternatives. A reduction in default RMA widths would lead to a decrease in the overall effectiveness of

default RMA widths and result in an increase in potential short- and long-term, adverse effects to riparian and aquatic habitat.

Under this alternative, restoring and/or conserving a smaller amount of riparian and aquatic habitat would provide negligible, beneficial effects to riparian and aquatic habitat and species by minimally maintaining or increasing both the quality of riparian and aquatic habitat and the quantity of special status aquatic species, and at a much slower rate and to a lesser degree than Alternative 1.

Under Alternative 2, intensive riparian monitoring would apply to streams that flow at least 1 mile across public lands. However, the target for initial riparian stubble height would be set at 2-3 inches for streambanks that are dry and stable and 3-4 inches for those that are vulnerable to livestock impacts, which is lower than proposed under Alternative 1. This would result in minor to moderate, long-term, adverse effects to riparian habitat, aquatic habitat, and special status aquatic species due to an increase in riparian vegetation utilization and streambank trampling, which would, in turn, result in a decrease in riparian vegetation quality and quantity due to an increase in sedimentation and a decrease in streamside shading.

Under Alternative 2, upland vegetation management would result in long-term, moderate, adverse effects to riparian and aquatic habitat and species due to a potential increase in livestock grazing, which would result in an increase in upland sedimentation and soil erosion. As a result, this would lead to a large reduction in aquatic habitat quality and quantity, especially in watersheds that support special status aquatic species.

Under Alternative 2, watersheds that support native and non-native sport fish species and/or recreational fisheries would receive a large majority of conservation and/or restoration management efforts, while those watersheds that do not support both native and non-native sport fish species and/or recreational fisheries would only receive a minor amount of conservation and/or restoration management efforts.

Aquatic and riparian habitat quality and conditions in watersheds that support native and non-native sport fish species and/or recreational fisheries would be maintained and greatly improved, while aquatic and riparian habitat quality and conditions in watersheds that do not support both native and non-native sport fish species and/or recreational fisheries would either be maintained or substantially unimproved.

Under Alternative 2, an overall greater amount of fuels treatments would result in an increase in minor to moderate, long-term, adverse effects to riparian and aquatic habitat and species due to an increase in ground-disturbance and sedimentation within or adjacent to riparian areas as a result of an increased amount of fuels treatments proposed under this alternative.

However, the overall potential for beneficial impacts to riparian and aquatic habitat and species would be much greater than Alternative 1 due an increase in the health and vigor of riparian and

upland vegetation as a result of a greater amount of fuels treatment activities across the entire Planning Area.

Changes or adjustments to grazing systems would occur at the same rate as Alternative 1, although rest periods would be discretionary under Alternative 2, the beneficial effects of which would be minor over the short term but negligible over the long term.

Compared to Alternative 1, Alternative 2 would designate a much larger amount of acres as Open to OHV use and the lowest amount of acres as Closed to OHV use compared to all the other action alternatives. Therefore, Alternative 2 has a higher potential to negatively impact riparian habitat, aquatic habitat, and special status aquatic species due to a potential increase in OHV use and activity.

Overall, this alternative would have a lower potential for riparian and aquatic habitat and species improvement than the No Action Alternative and Alternative 1.

Alternative 3

Under Alternative 3, 40 miles of stream restoration work would occur every ten years to improve water quality-limited streams, riparian condition, and aquatic habitat, but with an emphasis on restoring habitat in watersheds that support recreational fisheries and/or special status sport fish species, as well as reducing the impacts associated with an increase in recreational fishing opportunities.

Conserving and/or restoring a larger amount of riparian and aquatic habitat under would provide beneficial effects to riparian and aquatic habitat and special status aquatic species by maintaining or increasing both the quality of riparian and aquatic habitat and the quantity of special status sport fish species at a much higher rate and to a larger extent than Alternative 2.

The same protective and restorative upland vegetation management efforts proposed under Alternative 1 would also take place. However, under Alternative 3, perennial understory vegetation production would be improved and prescribed or use of wildland fire would be utilized in high use recreational areas. Furthermore, 1,000 acres of seeding, the smallest amount of all the action alternatives, would take place over the life of the RMP, but only in areas that improve recreational opportunities. This would lead to a minor improvement in rangeland health conditions in high use recreational areas.

Adverse and beneficial impacts from livestock grazing on riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, except the magnitude of and potential for adverse impacts under Alternative 3 would be slightly smaller and lower than Alternative 1, while the magnitude of and potential for beneficial impacts under Alternative 3 would be slightly larger and higher than Alternative 1.

In general, recreation and travel and transportation management under Alternative 3 would be the same as Alternative 2. Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 2, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

Alternative 4

Under Alternative 4, 80 miles of stream restoration work would occur every ten years to improve water quality limited streams, riparian condition, and aquatic habitat in watersheds that support native and/or special status aquatic species only. Additionally, default RMA widths would be wider than those established by PACFISH/BLM Bull Trout Strategy Standards, with the exception of Category 1 and 3 streams, which would remain the same.

An increase in the default RMA widths, as established by PACFISH/BLM Bull Trout Strategy standards, for Category 2 and 4 streams would lead to a increase in the overall effectiveness of default RMA widths and result in an decrease in potential adverse effects to riparian and aquatic habitat from ground-disturbing activities conducted within or adjacent to riparian areas.

Compared to all other alternatives, with the exception of Alternative 5, the potential for riparian and aquatic habitat improvement is the highest under Alternative 4 due to a much larger amount of stream restoration goals every 10 years, the implementation of default RMA widths established under by PACFISH/BLM Bull Trout Strategy standards for Category 1 and 3 streams, and an increase in default RMA widths for Category 2 and 4 streams.

Conserving and/or restoring a larger amount of riparian and aquatic habitat for native and/or special status aquatic species under would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species at a much higher rate and to a larger extent than all the other alternatives.

Compared to Alternative 1, management direction and activities under Alternative 4 would lead to an increase in the protection and improvement of aquatic and riparian habitat quality through both a decrease in erosion and a reduction in potential sediment disturbance and delivery into streams.

More protective and restorative upland vegetation management efforts would be implemented compared to Alternative 1. This would lead to a widespread improvement in rangeland health conditions and the attainment of rangeland health standards at a much faster rate than any of the other alternatives. Therefore, under Alternative 4, upland vegetation management could result in moderate, long-term, beneficial effects to riparian and aquatic habitat and species due to an overall decrease in upland sedimentation and soil erosion.

With an emphasis on native and/or special status aquatic species only, management activities would be promoted that maintain or improve existing aquatic and/or riparian habitat in

conservation watersheds, and that improve or restore aquatic and/or riparian habitat in restoration watersheds.

Compared to all of the other alternatives, with the exception of Alternative 5, Alternative 4 would greatly decrease grazing pressure across the entire Planning Area, which would greatly decrease both the potential for and the magnitude of adverse impacts to riparian and aquatic habitat and species.

In general, recreation management under Alternative 4 would be the same as Alternative 1, except there would be an emphasis on low-impact recreational activities (non-motorized/mechanized). Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 1, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

Alternative 5

In general, riparian and aquatic habitat and species management under Alternative 5 would be the same as Alternative 4, except there would be an emphasis on low-impact and less intrusive management activities. Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts.

In general, riparian vegetative community resource management under Alternative 5 would be the same as Alternative 4, except there would be no grazing on 303(d)-listed streams. Therefore, impacts to riparian and aquatic habitat and special status aquatic species would be the same as Alternative 4, but at a slightly smaller magnitude and with a slightly lower potential for adverse impacts in riparian areas adjacent to 303(d)-listed streams.

Compared to all of the other alternatives, Alternative 5 would greatly decrease grazing pressure across the entire Planning Area, which would greatly decrease both the potential for and the magnitude of adverse impacts to riparian and aquatic habitat and species.

Alternative 5a

Under Alternative 5a, no domestic livestock grazing would be allowed on BLM-administered lands within the entire Planning Area. This would provide long-term, beneficial impacts to riparian and aquatic habitat and species through a decrease in ground disturbance and erosion and an increase in vegetative cover and streambank stability. Rangeland health standards would be achieved most quickly under this alternative.

This would provide moderate to major, long-term, beneficial effects to riparian and aquatic habitat and special status aquatic species at the watershed scale by maintaining or increasing the quality of riparian and aquatic habitat and the quantity of native and/or special status fish species across a majority of the Decision Area.

Generally, it would be expected that riparian and upland vegetation areas would benefit over the long term from a lack of grazing due to an increase in vegetative cover and a decrease in erosion and sedimentation. However, there is potential for a long-term increase in non-native annual vegetation in sagebrush communities that would lead to an increase in fire frequency and intensity, which would result in an increase in sedimentation and erosion, especially in areas not managed for fuels reductions.

Overall, the absence of grazing under Alternative 5a would lead to a long-term increase in the protection and improvement of aquatic and riparian habitat quality and quantity as a result of a long-term increase in vegetative cover and decrease in erosion and sediment delivery into streams. However, in annual grassland areas, removal of livestock could increase fuel loading to the point where future wildfires could have a higher intensity, severity, and frequency. In these areas, negative effects could occur on a localized to watershed scale from an increase in wildfire frequency, leading to increased erosion and sedimentation along streams, as well as the removal of stabilizing riparian vegetation.

Compared to Alternative 5, Alternative 5a would remove grazing pressure across the entire Decision Area, which would eliminate the potential for adverse impacts to riparian and aquatic habitat and species from livestock grazing. Therefore, under Alternative 5a, the absence of livestock grazing would result in major, long-term, beneficial impacts on riparian and aquatic habitat and special status aquatic species within BLM-administered lands due to a long-term increase in riparian and aquatic habitat quality and quantity, as well as special status aquatic species quantity.

However, the removal of livestock grazing on public lands could also lead to more grazing pressure on adjacent private lands. While riparian areas on BLM-administered lands would improve, there is potential for higher numbers of livestock or longer periods of grazing on private pastures, which could result in adverse effects to aquatic and riparian habitat and species on adjacent public lands.

8. WILDLIFE

Wildlife resources in the Decision Area can be impacted from management actions that lead to loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weed species, increased habitat fragmentation, changes in habitat and species composition, disruption of species behavior leading to reduced reproductive fitness and/or increased susceptibility to predation, and direct mortality. In addition, surface-disturbing actions that alter vegetation characteristics (e.g. structure, composition, and/or production) have the potential to affect habitat suitability for wildlife, particularly where the disturbance removes or reduces cover and/or food resources. Even minor changes to vegetation communities have the potential to affect resident wildlife habitat, which potentially could impact populations.

Direct impacts to wildlife resources from management activities may result in displacement of individuals, reduced reproduction success, or direct mortality due to harassment of animals,

habitat disturbance, or changes in key habitat components. Key habitat components include: food availability or quality; cover from predators; insulation from extreme temperatures; nesting, roosting, or denning habitat; water availability and quality; and travel corridors. Direct impacts may affect wildlife populations or habitats for the duration of the action, for a few days thereafter, for several growing seasons, or may continue indefinitely where the action results in permanent habitat loss.

Indirect impacts to wildlife resources from management activities typically result from influences of post-disturbance succession, recovery, or rehabilitation of the habitat. These impacts may be long-term and, depending on the severity of the habitat alteration, may change species assemblages (i.e., relative abundances or species composition), species behaviors, or overall population trends, which could benefit some species and negatively affect others.

The direct and indirect impacts of management actions on wildlife resources may vary widely, depending on a variety of factors, which include the following:

- Dynamics of the habitat (e.g. community type, size, shape, complexity, seral state, and condition)
- Season, intensity, duration, frequency, and extent of the disturbance
- Rate and composition of vegetation recovery
- Degree of change in vegetation structure
- Type of soils that support vegetative communities
- Topography and micro sites
- Animal species present
- The mobility wildlife species (i.e., ability to leave a site or recolonize a site after a disturbance)

A number of wildlife species identified in Chapter 3 will not be discussed in this section due to the lack of population data, and the fact that many of these species have limited, marginal, transient, or migratory habitat within the Decision Area. For example, moose, mountain goats, and waterfowl are not discussed due to their having minimal habitat within the Decision. In comparison, cougar and American black bear habitat is common throughout the Decision Area, but the species are not analyzed in this section due to the lack of specific information on population trends. Invertebrates and reptiles are also found throughout the Decision Area, but because of the lack of data and knowledge of these species (including dispersion patterns, trends, and locations), they are not analyzed below. Finally, while Rocky Mountain bighorns are known to occur within the Decision Area, habitat requirements and threats to population dynamics are similar to those identified for California bighorns. Therefore, analysis for California bighorn applies to Rocky Mountain bighorn.

a. Indicators, Methods, and Assumptions

Wildlife Indicators

Wildlife is dependent on the condition of vegetative habitat for survival. Important indicators of wildlife habitat health are directly tied to plant composition, distribution, and structure. For the Decision Area, both rangeland and forest plant communities contribute to wildlife habitat on public lands.

The BLM may assess, evaluate, and/or monitor wildlife habitat health on public lands by considering the indicators listed below. These factors apply to habitats for relatively common species as well as special status species, so they will not be repeated under the Special Status Species (Wildlife) section of this chapter.

Sagebrush Steppe Rangeland Habitat Indicators

- Distribution, abundance, and vigor of shrubs, grasses, and forbs (functional and structural plant groups)
- Percent shrub canopy cover
- Shrub height and maturity
- Relative proportions and spatial distribution of sagebrush steppe³ supporting a shrubland conditions (≥ 5 percent canopy cover) or grassland conditions (< 5 percent canopy cover)
- Shrubland connectivity, or lack thereof, at fine and mid scales (small landscapes of hundreds of acres to larger landscapes of thousands of acres)
- Spatial distribution of shrublands at fine- and mid-scales
- Invasive/noxious plants
- Invasive woody plant absence or presence (especially western juniper in sagebrush steppe)
- Timing, intensity, duration, and location of resource uses and activities
- Rangeland monitoring studies (typically indications of upward or downward trend for important plant species)

Juniper Woodland Habitat Indicators

- Distribution, abundance, and vigor of functional and structural plant groups (shrubs, grasses, and forbs)

³ Sagebrush steppe habitat may appear as a shrubland or grassland habitat type. Disturbance such as wildfire or mechanical treatment can temporarily modify land with inherent potential to support shrubs so that it appears to be grassland. Most of the rangeland in the Planning Area is classified as Snake River Plain sagebrush steppe (Miller and Eddleman 2000).

- Percent juniper canopy cover
- Recruitment of young juniper
- Old-growth juniper trees
- Invasive/noxious herbaceous plants
- Timing, intensity, duration, and location of resource uses and activities

Moist or Dry Forest Habitat Indicators

- Distribution, abundance, and vigor of trees, shrubs, grasses, and forbs (functional and structural plant groups)
- Percent canopy cover
- Forest habitat structure and age
- Distribution and abundance of standing dead trees (snags)
- Old-growth trees
- Forest habitat connectivity or fragmentation
- Forest habitat patch size
- Timing, intensity, duration, and location of resource uses and activities

Riparian and Wetland Habitat Indicators

- Distribution, abundance, and vigor of trees, shrubs, grasses, and forbs (functional and structural plant groups)
- Woody plant canopy cover, height, and maturity (important deciduous species such as willow, aspen, alder, cottonwood, and others)
- Herbaceous and woody plant recruitment
- Bank stability
- Timing, intensity, duration, and location of resource uses and activities

Wildlife Methods and Assumptions

- Wildlife health within the Decision Area is directly related to the overall ecosystem health, habitat abundance, habitat fragmentation, and wildlife security provided.
- Impact analysis on wildlife resources included an assessment of whether each action would result in the possible destruction, degradation, or modification of habitat, as well as impacts that could improve wildlife habitat.
- A large proportion of management actions under all alternatives are mitigation measures for other actions and protective measures, so that many of the individual actions could improve wildlife habitats or the health of populations, depending on the success of the action when completed. For example, many management actions proposed under the vegetative communities resource management program would benefit wildlife, which makes it unnecessary to repeat the management actions under the wildlife resource management program.

- The degree of impact attributed to any one management action or series of actions is influenced by the watershed, time, and degree of action, existing vegetation, and precipitation.
- Desired future conditions for each special status wildlife species would continue to be developed as data become available. These desired future conditions would be patterned after those presented for greater sage-grouse and would be used as a tool to manage special status species wildlife within the Planning Area.

Magnitude of Impacts to Wildlife

The analysis of potential impacts to wildlife resources is based on the expertise of BLM resource specialists and on the review of existing literature and information provided by non-planning team experts in the BLM, USFWS, ODFW, and other agencies.

Quantifying impacts to wildlife is difficult due to the lack of monitoring data for most species. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:* The effect to wildlife would be at or below the level of detection, and changes would be so slight that would not be any measurable or perceptible consequence to individuals or the population as a whole.
- Minor:* The impacts on wildlife would be detectable but localized, small, and of little consequence to the population of any species habitat. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
- Moderate:* The impacts on wildlife would be readily detectable and relatively localized, with potential consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and would probably be successful.
- Major:* Changes to wildlife would be measurable, have substantial consequences, and be noticed regionally. Mitigating measures would be necessary, and their success would be uncertain.

Because some species of wildlife are also considered special status species, only impacts to non-special status wildlife are discussed in this section. Impacts to federally listed, proposed, and candidate species and state or BLM sensitive species are addressed in the Impacts to Special Status Species section.

Temporal Scale

- Short-term:* Anticipated effects occur within 0 to 5 years of project implementation.
- Long-term:* Anticipated effects occur for at least 15 years.

b. Impacts to Wildlife

Impacts to wildlife resources would result from actions proposed under the following resource management programs:

- Climate Change
- Water Resources
- Vegetative Communities
- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs

Impacts Common to all Alternatives**Impacts from Minerals*****All Wildlife Species***

The development and production of leasable, locatable, and saleable minerals could cause long-term displacement of wildlife from preferred use areas or destroy habitat. Wildlife would likely vacate most of the development areas, as well as some adjoining land, in order to avoid sustained human disturbances. Adjustments in the location or timing of saleable mineral extraction sites would limit adverse impacts to wildlife use.

Impacts would be localized, and could be long-term and moderate where the development site occurs within an intensively-used wildlife area, which would impede the ability to follow ODFW management goals for maintaining or increasing native wildlife populations. Impacts in other instances would be short-term as some wildlife species may reoccupy part of their former range following the cessation of development activities, or the areas affected may only be used seasonally.

Big Game**California Bighorn**

Burnt River Canyon has had several mining operations that overlap occupied bighorn spring, summer, and fall habitats, which would continue to have short-term, adverse, moderate impacts on such habitats. On the other hand, impacts from mining operations in bighorn winter range would be negligible because there is more suitable winter range than is needed to support

bighorn numbers. In addition, mining operations would continue to be required to restore the disturbed site once mining operations cease, which would reduce the long-term, adverse impacts to negligible.

No Action Alternative

Impacts from Water Resources

Big game

Excluding livestock grazing from identified stream segments, bogs, and spring overflows where use was inconsistent with riparian management would result in an increase of riparian woody vegetation. This would benefit deer and elk because such species make considerable use of riparian areas where forage is of better quality and/or more abundant (Collins and Urness 1983). Overall beneficial impacts would only be minor due to the limited number of acres that would be excluded from grazing.

Continuing the implementation of watershed management plans and cooperation with state and federal agencies to maintain and improve water quality under the No Action Alternative would indirectly benefit big game habitat by maximizing habitat availability and riparian stability. Overall, adverse, long-term impacts from water resources on big game habitat would be minor.

Neotropical and Migratory Birds

Successful migration depends on whether birds can replenish energy reserves rapidly, locate suitable stopover sites and travel routes, avoid predation in unfamiliar habitats, and cross travel barriers quickly and safely (Lindstrom 1989, Metcalfe and Furness 1984, Moore and Kerlinger 1987, Moore 1990). As a result, the availability of suitable habitat for migrating birds may influence survival and population stability (Hutto 1985). Furthermore, because time and energy constraints may limit the ability to search for superior habitats during migration (Ward 1987), this causes migrating birds to be particularly vulnerable to alterations and losses of in-transit habitats, specifically riparian areas.

Excluding livestock grazing from identified stream segments, bogs, and spring overflows would reduce the potential of over utilization in stream reaches that are important for seasonal migration and stopover corridors (Finch 1991). However, the amount of riparian area that would be protected by exclosures would be limited. In addition, the No Action Alternative does not propose management actions that would restore stream health, which would improve bank stability and increase the vigor of riparian vegetation, which are important for seasonal movement of migratory birds (Finch 1991; Holmes et al. 2003). Such lack of stream health management would result in adverse, long-term impacts that would range from minor to moderate.

Upland game Birds

Excluding livestock grazing from identified stream segments, bogs, and spring overflows would reduce the potential of over utilization in stream reaches that are important for foraging and drink sites for upland game birds. However, the amount of riparian area that would be protected by enclosures would be limited. In addition, the No Action Alternative does not propose management actions that would restore stream health, which would increase the vigor of riparian vegetation that provides cover in riparian areas. Since winter survival of upland game birds partially depends upon the amount of cover available to them during the critical cold months (ODFW 2010), not proposing management actions that would contribute to additional water and riparian cover areas throughout the Decision Area would indirectly result in adverse minor to moderate, long-term impacts to upland game bird habitat.

Impacts from Vegetative Communities

Big game

Management actions under the No Action Alternative lack emphasis for restoration of Wyoming big and mountain big sagebrush communities, which would allow for further degradation of important habitat for big game in spring, fall, and wintering areas.

Perennial grass is another important component for big game habitat needs (Griffith and Peek 1989). Mule deer tend to favor grassland in early to mid-seral stages (Griffith and Peek 1989) and bluegrass plant communities, while elk prefer bluebunch wheatgrass and Idaho fescue (Sheehy and Varva 1996). The No Action Alternative would leave between 40-60 percent of perennial grasses across rangelands, which may or may not be adequate for big game foraging needs and hiding cover since stubble heights would fluctuate yearly depending on winter and spring moisture.

Deer and elk may seek riparian and mesic habitats with greater density of overstory for hiding and foraging areas (Koehler and Hornocker 1991). Riparian areas are particularly vulnerable in late summer when excessive grazing browsing may damage shrubs, reduce the yield and availability of succulent forbs, and cause deterioration of riparian function over time (Klebenbow 1985; Kovalick and Elmore 1992). The No Action Alternative would implement grazing systems that would provide for rest and rejuvenation of riparian vegetation on selected streams. Management would take a trial and error approach to achieving a desirable condition that would set riparian utilization targets of restricting fall grazing to improve woody vegetation. While this would be beneficial for big game in the long term, it could take up to the life of the RMP to develop management that would be consistent with meeting riparian objectives.

Maintaining late seral forest structure characteristics under the No Action Alternative would benefit mule deer and elk by providing thermal and hiding cover (USFS 1979). While providing no specific guidance for hardwood shrubs and juniper woodland would not benefit big game habitat, planting and/or seeding bitterbrush (which has a high caloric value) on critical winter

ranges would benefit wintering mule deer, elk, and the American pronghorn. Overall, impacts would be beneficial, long-term, and minor.

California Bighorn

While bighorns utilize plant communities in different climax conditions (Wikeem and Pitt 1999; Peek et al. 1979; Demachri 1968), bighorn seek perennial grasses like bluebunch wheatgrass (a mid- to late-seral grass species) to meet their caloric needs. Managing for mid to late seral or climax plant communities under the No Action Alternative would thus benefit bighorn.

Neotropical and Migratory Birds

Shrubland and grassland birds are declining faster than any other group of species in North America (Rich et al. 1994, Saab and Rich 1997, Paige and Ritter 1999). Managing for mid- to late-seral plant communities under the No Action Alternative would potentially provide a higher canopy cover and thus be conducive to migratory bird habitat (Finch 1991; Holmes et al. 2003). Specifically, sagebrush canopy cover between 5 to 25 percent is beneficial for neotropical and migratory bird habitat because it provides enough open space for forbs, which are an important food source, and is adequate to support multiple bird species (Paige and Ritter 1999). On the other hand, since sagebrush is needed for hiding and nesting cover during seasonal migrations (Finch 1991), the lack of an emphasis on the restoration Wyoming big and mountain big sagebrush under the No Action Alternative would allow for further degradation of neotropical and migratory bird habitat. In addition, not requiring the reclamation of Wyoming big sagebrush after loss due to surface-disturbing actions could result in further reductions of such habitat.

Perennial grass is another important component for neotropical and migratory birds as it provides additional hiding and nesting cover, and is a food source (Popham and Gutierrez 2003; DeLong et al. 1995; Gregg et al. 1994; Paige and Ritter 1999). The livestock and wildlife forage utilization targets, when combined, would be set at a range at 50 percent in most areas under the No Action Alternative. Since stubble heights would fluctuate yearly depending on winter and spring moisture, a 50 percent utilization rate may not leave adequate residual grasses for nesting/hiding cover during drought years. Adverse impacts would range from minor to moderate.

Neotropical and migratory birds also use riparian areas for their lifecycle needs (Saab and Rich 1997). Riparian areas are particularly vulnerable in late summer when excessive grazing and browsing may damage shrubs, reduce the yield and availability of succulent herbs, and cause deterioration of riparian function over time (Klebenow 1985; Kovalchik and Elmore 1992). Under the No Action Alternative, riparian habitat would be restored or maintained through modification of grazing systems, indirectly benefitting neotropical and migratory bird habitat.

Neotropical migrant species that primarily use forested habitats in either wintering or breeding areas are declining due to place deforestation across winter and breeding areas (Robbins et al. 1989). In general, deforestation at local sites on both the breeding and wintering grounds leads to declines in forest-dwelling specialists (Robbins et al. 1989). Maintaining late-seral forest

structure characteristics and emphasizing old-growth characteristics under the No Action Alternative would provide thermal and hiding cover needed for wintering and breeding purposes (Gates and Giffen 1991).

The No Action Alternative provides no specific management guidelines for the restoration/maintenance of hardwood, shrub, and juniper woodland communities. These communities are considered key components for some neotropical and migratory birds. On the other hand, even without specific guidelines, current management has focused on improving hardwood (e.g., aspen and willow) stands and reducing juniper encroachment into mountain big sagebrush communities, although other critical communities (e.g., mountain shrub communities) have been overlooked. Continued management for hardwoods would result in major beneficial impacts to neotropical and migratory birds, while neglecting mountain shrub management and applying only limited juniper reduction treatments would continue to have some adverse affects.

Northern Goshawks

Goshawks select habitats with structural characteristics of mature to old-growth forests, such as large trees and dense canopy closure (Greenwald 2005). While 10 percent of old-growth forests would be protected under the No Action Alternative, suitable goshawk habitat requires 20 percent of foraging forest structure be mature and an additional 20 percent to be old growth (Desimone and Hays 2004). Adverse impacts to goshawk habitat would be long-term and moderate.

Upland Game Birds

Sagebrush is needed for hiding, nesting, and winter cover for upland game birds (ODFW 2010). Under the No Action Alternative, a mid to late-seral shrub class would provide such cover, thus beneficially impacting game birds. On the other hand, a lack of emphasis for restoration of Wyoming big and mountain big sagebrush would allow for further degradation of upland game bird habitat, and not having a requirement to restore the loss of Wyoming big sagebrush communities could further reduce existing habitat, resulting in adverse impacts.

Helping to restore or maintain riparian habitat through modification of grazing systems would indirectly benefit upland game bird habitat by preserving some streamside vegetation (e.g., forbs and grasses) for forage and hiding cover. Since hardwood shrubs contribute to upland game bird habitats and juniper encroachment reduces the habitat size for some species, not providing specific guidance for hardwood shrubs and juniper woodland would be adverse to some upland game bird species. Overall, however, impacts would be beneficial, long-term, and minor.

Impacts from Wildlife

Big game

The No Action Alternative includes a goal to maintain/improve habitat quality for various big game species, which would directly benefit such habitats. Such a goal would be achieved by

designating areas for big game habitat management, continuing the identification of wildlife habitat requirements as other resource activity plans are prepared, developing additional cooperative management agreements with Washington Department of Fish and Wildlife (WDFW) and ODFW, and conducting inventories of isolated tracts of public land to determine wildlife resource values.

While the No Action Alternative states that habitat management plans (HMPs) would be written for big game wildlife species, no HMPs have been prepared to date due to a shift in focus. Instead, the BLM has been considering ODFW specific guidelines for habitat management, which would continue to help maintain habitat and genetic needs. In addition, the BLM would continue to follow several memorandums of understanding (MOUs) with ODFW, which are aimed at helping to maintain and manage big game population on public lands. Overall, impacts would be beneficial, long-term, and minor.

California Bighorn

The No Action Alternative objectives for wildlife habitat management would be consistent with the 1988 Fish and Wildlife 2000 plan, which would maintain/improve habitat quality for bighorns in appropriate GUs. This document had been updated in the 6840 Special Status Species Manual to provide policy and guidance for the conservation of BLM special status species and their habitat on public lands; however, since the California bighorn is not a Bureau sensitive species, the 6840 manual would act more as habitat guidelines than policy.

Under the No Action Alternative, ODFW and WDFW management goals for the recovery of bighorns in Oregon would be supported, which would improve bighorn habitat quality by maintaining enclosures for cattle, designating areas for big game management, and relocating of bighorn to suitable habitat within the Decision Area. Due to unstable populations within the Decision Area, periodic transplants of bighorns would maintain a viable genetic population.

While the No Action Alternative states that an HMP would be written for bighorn habitat, this would not likely occur due to the shift away from writing HMPs. Instead, the BLM would likely continue to follow management goals set under the Oregon's Bighorn Sheep and Rocky Mountain Goat Management Plan (ODFW 2003), which would help maintain habitat and genetic needs. Impacts would be long-term, beneficial, and minor to moderate.

While Instruction Memorandum (IM) No. 98-140 identified that buffers of 9 miles needed to be placed between domestic sheep and occupied bighorn habitats, except where topographic features or other barriers prevent physical contact between bighorn and domestic sheep (BLM 1998, such buffers may not be adequate to prevent interactions between bighorns and domestic animals (Rinkes 2010). Domestic sheep are currently grazed on the Pritchard Creek Allotment, which is closer than 9 miles from occupied bighorn sheep habitat. While this allotment is separated by Interstate-84, due to expanding bighorn populations, there is a high probability that bighorns may come into contact with domestic sheep and goats, which would have major adverse effects to wild bighorn herds due to potential disease transmission. Although a 4-lane

interstate separates the domestic sheep from the bighorns, the latter have been seen in relatively close proximity to the domestic sheep allotment. If wild bighorn herds stay within suitable areas in the Decision Area, the lack of a 9-mile buffer would have negligible, adverse impacts. If bighorns come into contact with domestic sheep or goats, adverse impacts would be long-term and major.

Neotropical and Migratory Birds

While the No Action Alternative does not directly address the habitat needs of neotropical and migratory birds, management would be consistent with BLM policy identified in the 1988 nationwide “Fish and Wildlife 2000” plan, which has been updated to the 6840 Manual for Special Status Species. This would be beneficial for neotropical and migratory bird habitat.

Northern Goshawks

Although northern goshawks are not considered cavity nesters, snags are still an important component for adequate habitat because they provide a place for nest building and fledgling rearing (Reynolds 1992), with a minimum three snags per acre being required to meet adequate snag ratios for goshawk habitat (Reynolds 1992; Desimone and Hays 2004). Addressing snag retention for cavity-dependent nesters under the No Action Alternative would have long-term, beneficial, minor impacts on goshawk habitat.

Under the No Action Alternative, current BMPs, and the latest science, BLM direction would continue to be used to address management for northern goshawk habitat. The BLM 6840 manual, which provides general management for northern goshawks, would also be followed. Such management would result in minor, beneficial, long-term impacts.

Upland game Birds

While the No Action Alternative does not directly address the habitat needs of upland game birds, management would be consistent with BLM policy identified in the 1988 nationwide “Fish and Wildlife 2000” plan, which has been updated to the 6840 Manual for Special Status Species. This would benefit upland game bird habitat. In addition, some of the upland game bird species would continue to be protected under the Treaty for Migratory Birds of 1918.

Impacts from Fire and Fuels Management

All Wildlife species

Suppressing fire within Wyoming big sagebrush habitat in order to conserve as much of that habitat as possible or attempting to achieve a mosaic burn appearance (Paige and Ritter 1999) would be beneficial to wildlife species that utilize that habitat. Impacts would be beneficial, long-term, and range from minor to moderate.

Northern Goshawks

Emphasizing the continued existence of old growth by promoting and restoring historic fire under the No Action Alternative would have beneficial effects on habitat used by northern goshawks. Such impacts would be long-term and minor.

Impacts from Forestry and Woodlands Products

Big game and Neotropical and Migratory Birds

The No Action Alternative lacks direct management for the restoration of old-growth structure, canopy closure, and composition (see USFS 1993). Canopy closure has direct effects on big game dispersal within forest habitats, with higher canopy closure habitats providing shelter, hiding, and thermal cover for wildlife (USFS 1979). Although the No Action Alternative does not address the retention of canopy cover during forest treatments, trees that are over 23 inches in diameter would be retained and protected, which would contribute to overall canopy closure. In addition, PCT and other cultural practices would be performed to maintain the allowable cut and to benefit other resources, particularly wildlife. This would be beneficial for wildlife, and the overall, long-term impacts would be beneficial and minor.

Northern Goshawks

Timber harvest is the primary threat to nesting populations of goshawks. While impacts to main nest sites are rare, satellite nests are sometimes destroyed by logging operations each year. Although nesting populations in the Decision Area are unknown, breeding densities could be lowered or individuals may redistribute to adjacent areas due to such logging operations. Harvest methods that create large areas of reduced forest canopy cover (less than 35-40 percent) may also have adverse impacts as goshawks need 60 percent canopy closure in at least 20 percent of a given area (Beier and Drennan 1997). Overall, beneficial, long-term impacts to Northern goshawks would be minor to moderate.

Impacts from Livestock Grazing

Big game

In the Decision Area, big game habitat occurs in areas that are also used for livestock grazing, which may result in competition over the limited resources (Loft et al. 1991), although there may also be some beneficial impacts to big game habitat (Anderson and Scherzinger 1975; Loft et al. 1991). For example, elk can benefit by livestock grazing if there is enough residual forage left for consumption by the elk (Anderson and Scherzinger 1975). Pronghorn are more adaptable to livestock grazing because they can shift their forage needs to browse shrubs (Ellis and Travis 1975). Rest-rotation grazing systems can be beneficial to rangeland health, thereby benefitting big game habitat. Efforts to redistribute livestock by using water development, salting, and herding can expand big game distribution (Yeo et al. 1993).

Adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage under the No Action Alternative would minimize conflicts between livestock and big game. Overall, adverse impacts to big game habitat would be long-term and minor.

California Bighorn

Rangeland health assessments in pastures that contain bighorn habitat are currently meeting standards. Because terrains preferred by bighorns during the spring and summer seasons are not suitable for cattle grazing due to slope steepness, cattle grazing would have a negligible effect on bighorn habitat (Valentine 1947; Ganskopp and Vavra 1987). No cattle are grazed in allotments that are within the bighorn's winter range, which prevents direct competition for forage. In addition, specialized cattle grazing systems (e.g., rest rotation and deferred rotation) have been developed to improve rangeland health and leave a sufficient amount of forage for wildlife. On the other hand, areas of the bighorn winter range that are not meeting rangeland health standards are expected to continue to be deficient until changes either in livestock management, seeding perennial grass, or sagebrush reduction projects are completed, which could take many years. Overall, long-term impacts from cattle grazing would be adverse and range from negligible to minor.

Impacts due to the potential of domestic sheep grazing in proximity to occupied bighorn habitat are discussed above under Impacts from Wildlife.

Neotropical and Migratory Birds

Adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage could minimize conflicts between livestock and neotropical and migratory birds. Setting forage utilization targets for all native plant communities at 50 percent would also be beneficial because 50 percent regrowth should be sufficient for seasonal needs for neotropical and migratory bird habitat (Paige and Ritter 1999; Saab et al. 1995).

Upland game Birds

In most instances, upland game birds that use sagebrush habitats would benefit if grazing management would promote residual grass in higher densities (Paige and Ritter 1999). For example, forage utilization targets of 40 to 50 percent are consistent with seasonal needs for most bird habitats (Paige and Ritter 1999; Saab et al. 1995). Under the No Action Alternative, non-native perennial grass seedings would be grazed in excess of these amounts; however, they account for only 10 percent of the Decision Area and provide only marginal habitat for upland game birds. Therefore, long-term, adverse impacts from utilization targets under the No Action Alternative would be minor.

Impacts from Recreation*Big game*

Recreation objectives under the No Action Alternative would maintain or enhance opportunities for hunting, sightseeing, hiking, and day use, which would have indirect, adverse, long-term impacts to big game within specific areas that overlap with these types of recreational uses.

Off-road recreational activities have been shown to have a substantial effect on deer and elk behavior, which may result in reduced fat reserves that are necessary to survive the winter period (Cook et al. 2004; Wisdom et al. 2004). Deer may respond to an off-road activity by seeking dense cover rather than running from the activity, while elk spend additional energy to flee from an off-road activity. These animals' energy budgets are thus adversely affected by the loss of foraging opportunities due to increased movements and displacement from foraging habitat or birthing areas (Parker et al. 1984) in response to off-road activities. Because most of the Decision Area would remain open to OHV use under the No Action Alternative, long-term impacts would be adverse, widespread, and moderate.

California Bighorn

Maintaining or enhancing recreational opportunities under the No Action Alternative could result in increased instances of harassment, which would cause repeated displacement (Papouchis et al. 2001; Taylor and Knight 2003). Repeated displacement at certain seasons would force the bighorns to use key energy fat reserves, force the use of less suitable birthing areas, and reduce the efficiency of perennial forage use. Since occupied bighorn habitat in the Decision Area are rather isolated and includes no developed recreation areas, harassment would be minimal. Adverse, long-term impacts would be localized and range from minor to moderate.

Neotropical and Migratory Birds

Maintaining or enhancing recreational opportunities under the No Action Alternative could lead to harassment and displacement of neotropical and migratory birds. Recreational expeditions may disrupt bird breeding activities, ultimately causing nest failures or decreased production of young (Paige and Ritter 1999). Repeated indirect harassment of bird species may result in a long-term displacement of those animals. Adverse impacts would be localized, moderate, and long-term.

Northern Goshawks

The No Action Alternative could result in construction of new recreation facilities for overnight and day use that would be close to goshawk nests sites. While localized adverse impacts could be long-term and range from moderate to major, depending on facility location, potential nest disturbance would be greatly minimized because nest surveys would be conducted prior to construction.

Upland game Birds

Impacts would be the same as identified for Neotropical and migratory birds.

Impacts from Travel and Transportation*Big game*

Roads are a major contributing factor to habitat fragmentation within public lands. Road-related human activities have been shown to strongly influence elk distribution, with cow elk selecting areas away from open roads in both spring and summer (Rowland et al. 2000). Due to a lack of management direction in the decommissioning of roads under the No Action Alternative, and the fact that most of the Decision Area would be left open to OHV use, adverse impacts would be long-term and moderate.

Impacts from Lands and Realty*All wildlife species*

Under the No Action Alternative, all utility/transportation corridors identified by the Western Regional Corridor Study would be designated and occupied without further review. Corridor widths would vary depending on the number of parallel facilities, with some overlapping wildlife habitat. Although this may displace some localized groups of wildlife within their habitat range, ROW applicants would be encouraged to locate new facilities (including communication sites) adjacent to existing facilities, which would minimize long-term impacts by not creating new areas of disturbance.

Big Game

The No Action Alternative would make most areas of public lands available for ROW developments, including for future wind energy developments. Large-scale modification of habitat associated with energy development may alter habitat use and reduce or fragment key habitat use areas. While big game is known avoid areas that have been developed for energy, thus becoming displaced, they are also known to become habituated by these types of disturbances (Walter et al. 2006).

Creating access roads and utility infrastructure for energy developments would reduce available forage for big game and create easier access for human disturbance. The effects of easier access include increased potential for poaching, increased harassment, and direct mortality from vehicle collision. Soil disturbance along utility corridors can also encourage the spread of weeds. Overall, impacts would be adverse, long-term, and moderate.

Neotropical and Migratory Birds and Upland Game Birds

In comparison to big game, bird species are more likely to be adversely affected by new ROW development sites (Johnson et al. 2002; Kuvlesky et al. 2007; Osborn and Higgins 2000; Kunz et al. 2007). Potential wind energy development in the Decision Area could result in four categories of impacts to birds: collision, displacement due to disturbance, barrier effects, and habitat loss (Drewitt and Langston 2006). Direct mortality or lethal injury of birds can result from collisions with rotors, towers, nacelles, and associated structures such as guy cables, power lines, and meteorological masts. It has been documented that birds have been forced to the ground because of a vortex created by moving turbine rotors (Chamberlin et al. 2006). Collision risk depends on a range of factors related to bird species including numbers, behavior, weather conditions, topography, and the wind farm project site, which includes the use of lighting (Drewitt and Langston 2006). The risk is likely to be greater on or near areas regularly used for feeding, stopping-over, nesting, or roosting, as well as on migratory flyways or local flight paths. Large birds (e.g., geese and swans) are a greater risk for turbine collision due to their limited maneuverability, compared to smaller species (Drewitt and Langston et al. 2006). Collision risk may also be higher during flights that take place at dawn and dusk because birds have a harder time detecting and avoiding turbines (Larson and Clausen 2002).

The displacement of birds from areas within and surrounding wind farms due to visual intrusion and disturbance can contribute to habitat loss (Drewitt and Langston 2006; Chamberlin et al. 2006; Huppopp et al. 2006; Lucus et al. 2003). Displacement may occur during both the construction and operational phases of wind farms, and may be caused by the presence of the turbines themselves, which can result in visual, noise, and vibration impacts. Displacement can also be due to vehicle/machinery and personnel movements related to site maintenance (Drewitt and Langston 2006). The scale of direct habitat loss resulting from the construction of a wind farm and associated infrastructure depends on the size of the project.

Overall, adverse impacts to bird species from the lands and realty program under the No Action Alternative, primarily those related to wind energy development, would be both short- and long-term and moderate.

Impact from ACECs

Big game

Maintaining the existing ACEC designations under the No Action Alternative would continue to conserve wildlife habitat. Beneficial impacts would be long-term and moderate, but not very widespread due to the limited ACEC acreage.

Impacts Common to all Action AlternativesImpacts from Travel and Transportation*Big game*

Managing motorized, mechanized, and associated human use under the action alternatives to be consistent with resource objectives could alleviate some of the adverse impacts identified under the No Action Alternative. Limited areas open to OHV use would greatly reduce adverse impacts from such use. Overall, impacts would be beneficial, long-term, and moderate.

Alternative 1Impacts from Water Resources*All wildlife species*

Removing roads within RMAs that are unneeded for resource management and removing the stream-road connection for needed roads that are contributing sediment to streams would disturb wildlife in the short term. In the long term, however, wildlife habitats would benefit from strengthened riparian areas. In addition, decommissioning roads would decrease the potential for human disturbance.

Restoring 140 miles of streams that are failing to meet rangeland health standards would be beneficial for big game because they use riparian areas for browsing and as travel corridors (Collins and Urness 1983). It would be beneficial for neotropical and migratory birds because they use riparian areas for breeding, nesting, and as travel corridors (Finch 1991), while upland game birds use such areas for hiding and travel corridors. Overall, beneficial impacts would be long-term and moderate.

Impacts from Vegetative Communities*All wildlife Species*

Managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function would indirectly benefit wildlife habitat. Managing upland vegetation and perennial grasses based on key plant and growth stages would ensure adequate residual forage for big game, which is important to wildlife habitat needs (Griffith and Peek 1989; Paige and Ritter 1999). In Wyoming big sagebrush habitats, an average perennial grass understory height of seven inches (except for Sandberg's bluegrass) in normal production years within wildlife habitat would be adequate for foraging needs (Sheehy and Veara 1996; Paige and Ritter 1999). Reclaiming Wyoming big sagebrush at a 2:1 ratio under Alternative 1 would reduce fragmentation of wildlife habitat compared to the No Action Alternative.

Setting initial riparian stubble height under Alternative 1 at 3-4 inches for stable streambanks and 6-8 inches vulnerable streambanks and increasing woody vegetation canopy cover along 303(d) streams not meeting standards for water temperature would ensure adequate residual forbs, browse, and grasses for big game (Koehler and Hornocker 1991) and adequate residual forbs, nesting, and breeding cover for bird species (Finch 1991).

Reestablishing bitterbrush within the Decision Area where big game is concentrated would benefit big game during wintering times by providing high caloric nutrition source. Retaining or restoring old growth stands as has been prescribed (USFS 1993), maintaining a diverse mix of forest species on the site, and maintaining and enhancing healthy populations of hardwoods and mountain shrubs would all be beneficial for wildlife habitat due to increased hiding areas, thermal cover, and food sources. Managing juniper woodlands to provide for historic, pre-fire suppression distributions of stands on the landscape would help reduce fragmentation of wildlife home ranges. Overall, impacts to wildlife habitat would be beneficial, long-term, and moderate.

Big Game

In addition to the beneficial impacts identified above for all wild species, big game would also benefit under Alternative 1 from the establishment of bitterbrush within the Decision Area where big game are concentrated, which would provide a high-calorie nutrition source during the winter months.

California Bighorn

Since rangeland vegetation would be managed based on utilization targets that are tied to key plant growth stages, long-term, beneficial impacts would be similar to those described under the No Action Alternative.

Neotropical and Migratory Birds

Northern Goshawks

Although goshawks are often associated with old-growth or late-seral growth types, it would be beneficial to have a variety of tree species in different age classes (Songer et al. 1997). Downed woody debris (niches) could facilitate increased rodent densities within their home-range (Songer et al. 1997). Beneficial, long-term impacts from this alternative to northern goshawks would be moderate.

Impacts from Wildlife

Big game

Under Alternative 1, not allowing net increases in the number of BLM roads throughout the life of the RMP would protect big game wintering ranges. Decommissioning roads and trails causing wildlife resource damage and changing grazing management where use is identified as

detrimental to wildlife habitat quality would improve big game habitat. Seasonally limiting human disturbance and/or disturbance by motorized vehicles would provide habitats that are secure from direct human disturbance during the breeding, birthing, and winter seasons, which is when wildlife is most susceptible to harassment.

Utilizing ODFW specific guidelines for habitat management and adhering to MOUs with ODFW to help maintain and manage big game population on public lands would have the same impacts as identified under the No Action Alternative.

Forest restorative treatments under Alternative 1 would meet most of big game needs for hiding cover because a minimum of 30 percent canopy cover would be retained (see Cook et al. 1995; Unsworth et al. 1989). Patches of thermal and hiding cover sufficient to meet the habitat requirements of mule deer and elk would be protected during western juniper treatments.

Big game habitat fragmentation and would be reduced and habitat connectivity potentially increased under Alternative 1 by maintaining and/or restoring riparian habitat complexity, diversity, and structure; mitigating development within wildlife travel corridors; and developing and implementing strategies to ensure that large contiguous patches of sagebrush would be maintained or improved.

Collaborating with state and federal wildlife agencies (e.g., ODFW, WDFW, and USFWS) for translocation of endemic wildlife into suitable habitats could help increase genetic diversity of such animals. Overall, long-term impacts to big game habitat would be beneficial and moderate.

California Bighorn

Impacts would be the same as identified above for all big game species.

Neotropical and Migratory Birds

Alternative 1 offers greater protection and restoration for neotropical and migratory bird habitat than the No Action Alternative by changing livestock grazing management in areas where grazing has lowered habitat quality for wildlife. In addition, implementing restorative treatments on 50 acres per year in neotropical and migratory bird habitats where native hardwoods and/or mountain shrubs are declining and retaining a minimum of 30 percent canopy closure within the treatment area of forested land would also protect or improve bird habitat. Furthermore, the protection of thermal and hiding cover that is sufficient to meet the habitat requirements of mule deer and elk would also indirectly provide some breeding habitat for migratory birds.

Maintaining and/or restoring riparian habitat complexity, diversity, and structure, by mitigating development within wildlife travel corridors and developing and implementing strategies to ensure that large contiguous patches of sagebrush are maintained or improved would directly benefit neotropical and migratory bird populations and habitat connectivity.

Northern Goshawks

Alternative 1 would provide specific management for goshawk habitat by providing adequate downed logs, which would create a niche for rodent use, which, in turn, is beneficial for goshawk food needs. Timber harvesting would be deferred on 30-acre parcels containing goshawk nest stands, except on a project-by-project basis where future forest health outweighs short-term displacement of individual goshawks. This ensures enough undisturbed habitat is retained around a nest site. Beneficial, long-term impacts would be moderate to major.

Upland game Birds

Impacts would be the same as described for Neotropical migratory birds

Impacts from Fire and Fuels Management*All Wildlife Species*

Impacts would be similar to those described under the No Action Alternative Action, with some additional protection provided to wildlife under Alternative 1. This includes greater protection provided to wildlife habitat due to suppression being given higher priority when fire is close to such habitat. In addition, determining if treatment is necessary to recover ecological process and achieve habitat objectives when wildfires burning more than 10 acres of sage-grouse habitat would indirectly benefit other wildlife habitats because they would also benefit from the recovery of ecological processes. Overall, long-term, beneficial impacts would be moderate.

Impacts from Forestry and Woodlands Products*Big Game and Neotropical and Migratory Birds*

Under Alternative 1, silvicultural practices of thinning from below in both warm/dry and cool/dry forests would be adequate within wildlife habitats because it would retain canopy cover while opening-up the forest floors (USFS 1979). Furthermore, sustaining mixed conifer stands with a diversity of species and size classes in cool/wet forest and clear-cutting in lodgepole pine areas or as small patch cuts to create openings for wildlife would address wildlife foraging areas (Cook et al. 1995).

Retaining a minimum of 30 percent canopy closure within the forest treatment area as cover would meet most of the needs of big game and neotropical and migratory birds for hiding cover (see Cook et al. 1995; Unsworth et al. 1989; Finch 1991; Saab and Rich 1997; Gates and Giffen 1991). Overall, the intensity of beneficial, long-term impacts would be increased to moderate, compared to minor under the No Action Alternative.

Northern Goshawks

As identified above for other bird species, retaining a minimum of 30 percent canopy closure as cover within the forest treatment area would be beneficial to northern goshawks for hiding. In

addition, providing 60 percent canopy closure in at least 20 percent of areas identified as important to Goshawks would address the habitat needs of the species. Impacts would be beneficial, long-term, and moderate.

Impacts from Livestock Grazing

All Wildlife Species

Alternative 1 would provide greater protection to big game habitat compared to the No Action Alternative by following Rangeland Health Standard 5. If Standard 5 is not met, a grazing system would be designed that would meet utilization requirements during important wildlife use times like birthing (big game), and breeding and nesting (bird species). Beneficial impacts from such actions would be long-term and minor.

Neotropical and Migratory Birds and Upland game Birds

Implementing a rotation schedule for allotments would regulate livestock use within important seasonal times, such as nesting (March-August). Basing allotment AUM capacity on proper range health would also ensure that adequate habitat is left for bird species (Paige and Ritter 1999). Overall, beneficial impacts would be long-term and minor.

Impacts from Recreation

All Wildlife Species

While Alternative 1 would increase recreational amenities, it would also reduce recreation-related impacts by considering other resources during the development of such amenities. For example, recreational uses would be modified when found inconsistent with the needs of wildlife and their habitats, which would reduce the amount of harassment wildlife receive compared to the No Action Alternative. Overall, beneficial impacts to would be widespread, moderate, and long-term.

Impacts from Lands and Realty

All Wildlife

Setting practical limitations for ROW corridors would minimize long-term, adverse impacts to wildlife habitats because disturbance would be limited to the areas needed for completion of a project. Setting aside exclusion areas for energy development under Alternative 1 would protect wildlife habitat from adverse impacts identified under the No Action Alternative where there is overlap between exclusion area and wildlife habitat. These exclusion areas would directly affect big game habitat by protecting important birthing and wintering areas, and by protecting important nesting, breeding, and wintering areas for bird species. Furthermore, these exclusion areas would also help reduce fragmentation of wildlife habitat, which would decrease stress

(Drewitt and Langston 2006), and allow for adequate winter fat reserves in big game animals (Lima and Dill 1990; Wisdom et al. 2004; Parker et al. 1984). Overall, impacts would be long-term, beneficial, and moderate.

Impact from ACECs

Big game

Impacts from maintaining existing ACECs would be similar to those described under the No Action Alternative. Designating Virtue Flat ACEC would contribute to big game habitat by protecting 41,823 acres from all land use authorizations, and increasing management protection of such habitats, including limiting travel to designated roads and trails, seasonal travel restrictions, and potential adjustments to existing grazing leases. Such management actions would reduce potential habitat fragmentation and harassment. Overall, beneficial impacts would be minor to moderate.

Alternative 2

Impacts Same as Under Alternative 1

- Impacts from Livestock Grazing
- Impacts from Recreation

Impacts from Water Resources

All Wildlife Species

Impacts would be similar to those described in Alternative 1, except that the benefits to big game habitat would be less widespread under Alternative 2 due to less extensive stream restoration (20 miles vs. 50 miles in Alternative 1) and less emphasis placed on reducing road densities within the RCAs. In addition, since roads only within RMAs not needed for commodity production or other resources would be identified, decommissioned, or rerouted, this would result in more roads remaining in the RMAs when compared to Alternative 1, which would, in turn, result in more fragmentation and disturbance to wildlife habitat. Adverse impacts to wildlife habitat would be minor to moderate in the long-term.

Impacts from Vegetative Communities

Big game

Compared to Alternative 1, Alternative 2 proposes fewer management actions that would protect big game habitat within Wyoming big and mountain big sagebrush communities. For example, road densities within Wyoming big sagebrush community would be maintained or increased, with the latter further fragmenting and reducing big game habitat (Wisdom et al. 2004; USFS

1979; Rost and Bailey 1979). Reducing Wyoming big sagebrush cover within big game habitat may not be conducive to hiding cover needs. Emphasizing fire in mountain big sagebrush communities with an emphasis on increasing forage for livestock grazing may or may not be beneficial for big game needs. While big game could benefit indirectly if there is more forage within a rangeland community, potential reductions in cover during the birthing and hunting season could adversely affect them (Ngugi et al. 1992). Reducing sagebrush, especially mountain big sagebrush, would also adversely affect big game species that use sagebrush as forage, particularly pronghorns whose spring diet can consist of 76 percent of mountain big sagebrush (Ngugi et al. 1992). Restoring Wyoming big sagebrush at a ratio of 1:1, and only if the restoration projects results in a net increase in livestock AUMs, would provide fewer benefits to big game habitat compared to Alternative 1. Not only would the amount of restoration be reduced, minimizing the extent of beneficial impacts, but the focus on increasing livestock AUMs may not always be conducive to big game habitat needs (Loft et al. 1991).

Impacts from managing perennial grasses would be the same as described under the No Action Alternative. Alternative 2 would provide limited management actions promoting riparian health compared to the No Action Alternative. Setting the initial riparian stubble height target at 2-3 inches for stable streambanks and 3-4 inches for vulnerable streambanks would be less beneficial for big game due to adverse impacts on riparian health.

Planting bitterbrush under Alternative 2 only if livestock AUMs were not reduced would reduce the amount of bitterbrush that would be available for habitat restoration compared to all other alternatives, and thus reduce important winter forage for big game. Using silvicultural methods in scattered forest parcels less than 80 acres that would maximize timber yield may not always be conducive to the needs of big game habitat. Retaining a minimum canopy cover of 20 percent within forest treatment areas would only provide marginal benefits for big game needs for hiding cover as a minimum of 30 percent is required for maximum benefit (Cook et al. 1995; Unsworth et al. 1998). Limiting the control of western juniper to areas that would result in increases to forage or woodland production may exclude treating areas where juniper encroachment has been a reason for concern in big game habitat.

Overall Alternative 2 provides less protection and restoration measures for Wyoming big and mountain sagebrush, riparian health, bitterbrush restoration, forestry canopy closures, and juniper control, resulting in long-term, moderate, adverse impacts.

Neotropical and Migratory Birds and Upland Game Birds

Impacts from managing Wyoming big sagebrush and mountain big sagebrush would be similar to those identified above for big game, as such actions may meet habitat needs for bird species, such as providing sufficient hiding and nesting cover for birds (see Paige and Ritter 1999). Impacts from management of riparian vegetation, forest communities, and western juniper would also be similar to those described for big game. Overall, impacts would be long-term, adverse, and moderate.

Impacts from Wildlife*All Wildlife Species*

Alternative 2 proposes fewer considerations for protecting wildlife habitat when compared to all other alternatives. For example, roads and trails causing wildlife resource damage would only be identified and decommissioned if they are not necessary for commodity use. The net result would be more roads remaining in the Decision Area, which equates to more fragmentation and disturbance to wildlife habitat.

Sagebrush canopy cover reduction projects under Alternative 2 that focus on providing a healthy understory of native grass for grazing purposes would result in more areas where sagebrush cover is reduced to less than 15 percent, which is not as beneficial for wildlife needs and other habitat components, such as travel and riparian corridors, become more important. In addition, Alternative 2 would only consider restoring and/or enhancing wildlife travel corridors as long as such restoration does not interfere with commodity use, which would limit the extent of such restoration projects compared to Alternative 1. Overall, impacts would be adverse, long-term, and moderate.

Impacts from Fire and Fuels Management*All Wildlife Species*

Impacts would be similar to those described under the No Action Alternative Action, although benefits may not be as extensive because wildfires burning less than 40 acres of sage-grouse habitat would not be evaluated to determine if treatment is necessary to recover ecological process and achieve habitat objectives. Indirect benefits to wildlife habitat would thus be restricted to burned areas that are greater than 40 acres. In addition, restoration would not take place where deemed necessary on burned areas of Wyoming big sagebrush habitat greater than 40 acres if it would reduce livestock AUMs. Overall, Alternative 2 would result in long-term, adverse impacts that would range from minor to moderate.

Impacts from Forestry and Woodlands Products*Big game and Neotropical and Migratory Birds*

Focusing silvicultural systems on methods that increase timber yield in scattered forest parcels less than 80 acres would not leave an adequate percent of canopy cover or overstory important for wildlife habitat. As a result, overall impacts would be adverse, long-term, and range from moderate to major.

Impacts from Lands and Realty*All Wildlife Species*

Impacts would be similar to those described under the No Action Alternative; however, such impacts would be more widespread due to more acres within the Decision Area that would be considered open for energy development. In addition, having a 6,000-foot wide utility corridor for disturbance would include areas with suitable wildlife habitats, including spring to fall unoccupied habitat for California bighorns and suitable seasonal habitats for birds, and thus expose those habitats to disturbance. Impacts from ROW-related access roads would also be similar to those identified under the No Action Alternative, although potentially more widespread. Overall, adverse impacts would be long-term and moderate.

Impact from ACECs*Big game*

Overall impacts would be similar to those identified under the No Action Alternative, albeit slightly less extensive due to fewer acres under ACEC designation under Alternative 2. Due to the designation of Virtue Flat ACEC, the benefits identified under Alternative 1 would not be experienced.

Alternative 3Impacts Same as Under Alternative 1

- Impacts from Livestock Grazing
- Impacts from Vegetative Communities
- Impacts from Wildlife
- Impacts from Forestry and Woodlands Products
- Impacts from Recreation
- Impacts from Lands and Realty

Impacts from Water Resources*All Wildlife Species*

Impacts would lie somewhere between those described for Alternative 1 (50 miles of stream restoration) and 2 (20 miles of stream restoration). Impacts from road improvements would be similar to Alternative 2, while impacts from the amount of proposed stream restoration would fall between Alternative 1 and 2. Overall, beneficial impacts to wildlife habitat would be minor.

Impacts from Fire and Fuels Management*All Wildlife Species*

Impacts would be similar to those described under Alternative 1, except that beneficial impacts would not be as extensive due to wildfires burning needing to burn 15 additional acres of sage-grouse habitat before they would be evaluated to determine if treatment is necessary to recover ecological process and achieve habitat objectives. This would reduce overall beneficial, long-term impacts to minor (compared to moderate under Alternative 1).

Impact from ACECs*Big game*

Overall impacts would be similar to those identified under the No Action Alternative, albeit more extensive due to roughly ten thousand more acres under ACEC designation under Alternative 3. Due to the designation of Virtue Flat ACEC, the benefits identified under Alternative 1 would not be experienced.

Alternative 4Impacts Same as Under Alternative 1

- Impacts from Livestock Grazing
- Impacts from Fire and Fuels Management
- Impacts from Forestry and Woodlands Products
- Impacts from Recreation
- Impacts from ACECs

Impacts from Water Resources*All Wildlife Species*

Impacts are the similar to those described in Alternative 1 (50 miles of stream restoration), except beneficial impacts would be more widespread in the long term due to stream restoration proposed under Alternative 4 (80 miles of stream restoration).

Impacts from Vegetative Communities*All Wildlife Species*

Compared to the previous alternatives, management of vegetative communities under this Alternative would provide the greatest benefit for wildlife habitat. This includes setting a light upland utilization target of 21-40 percent for all grazing allotments, which would provide

perennial grasses for foraging by big game (Griffith and Peek 1989) and for hiding/nesting cover for bird species (Herkert et al. 1996; Wiens et al. 1987). Conserving Wyoming big sagebrush habitats by using firebreaks between annual grasslands and native sagebrush communities and restoring Wyoming big sagebrush loss at a ratio of 3:1 would reduce habitat fragmentation.

Setting the target for initial riparian stubble height at 6-8 inches for stream banks would ensure that adequate residual forbs and grasses would be left for wildlife forage in late summer, as well as nesting/hiding cover for bird species. Emphasizing the establishment of bitterbrush in big game habitats would provide important high-calorie nutrition to big game during winter months.

Beneficial impacts from maintaining old-growth forests would be similar to Alternative 1, albeit more extensive as Alternative 4 provides greater emphasis on maintaining old growth stands. Furthermore, applying select restoration in hardwood and mountain shrub treatment areas based on highest benefit to wildlife species would protect or improve habitats that wildlife utilize for hiding, thermal cover, and a food source.

Road densities under Alternative 4 would be reduced in Wyoming big sagebrush communities to increase vegetation connectivity, which would be conducive to wildlife habitat needs. Managing juniper woodlands to provide for historic, pre-fire suppression distributions of stands on the landscape would help reduce fragmentation to wildlife home ranges.

Overall, restoring Wyoming big sagebrush for canopy cover, basing perennial utilization on plant growth stages, increased management in riparian areas, increased management for forested and hardwood habitat, and the greatest amount of juniper reduction would have moderate to major, long-term, beneficial impacts to big game habitat.

California Bighorn

Impacts would be similar to those described under Alternative 1, although benefits to winter range would increase due to lighter utilization targets that would be set under Alternative 4, which would result in greater amounts of residual forage. Since utilization targets for spring forage identified under Alternatives 1-3 should leave sufficient residual forage for the winter needs of bighorn within the Decision Area (Frost et al. 1994), such increases in residual forces would not change the intensity of overall long-term, beneficial impacts, which would remain the same as identified under Alternative 1 (e.g., moderate).

Upland game Birds

Impacts from Wildlife

All Wildlife Species

Impacts would be similar to those described under Alternative 1, although beneficial impacts would be more extensive due to more focus given under Alternative 4 for reducing habitat fragmentation. For example, there would be no net increase in the number of BLM roads

throughout the life of this RMP. Overall, this alternative would have long-term, beneficial impacts to wildlife habitat that would be moderate in magnitude.

California Bighorn

Impacts would be the same as identified under the No Action Alternative, except that increasing buffers between domestic sheep and occupied bighorn habitat to 30 miles under Alternative 4 would reduce the likelihood of disease and parasite transmission within public lands. Beneficial impacts would be long-term and range from moderate to major.

Northern Goshawks

Impacts would be similar to those described under Alternative 1, except that impacts from retaining cover in a treatment of forested land would be more extensive due to the retention of 35 percent cover in a treatment area under Alternative 4, compared to 30 percent under Alternative 1. Beneficial, long-term impacts would remain moderate.

Impacts from Lands and Realty

All Wildlife

Impacts would be similar to those described under Alternative 1. However, beneficial impacts would be more extensive due to more acreage falling within exclusion and avoidance areas. This would directly protect more wildlife habitat, resulting in long-term, beneficial impacts.

Alternative 5

Impacts Same as Under Alternative 1

- Impacts from Livestock Grazing
- Impacts from Fire and Fuels Management
- Impacts from Recreation
- Impacts from ACECs

Impacts Same as Under Alternative 4

- Impacts from Water Resources
- Impacts from Vegetative Communities
- Impacts from Wildlife
- Impacts from Lands and Realty

Impacts from Forestry and Woodlands Products*All Wildlife Species*

Using a less active restoration approach for habitat restoration and conservation under Alternative 5 would greatly increase the time needed to achieve the desired outcome within forested ecosystems. Such an approach may not be sufficient at protecting old-growth forest ecosystems from catastrophic fire, insects, and disease outbreaks, which, in turn, would reduce the amount of such habitat for wildlife. Overall, impacts would be adverse, long-term, and moderate.

Alternative 5a

Impacts would be the same as described under Alternative 5, with the exceptions described below.

Impacts from Livestock Grazing*Big game*

Excluding livestock grazing under Alternative 5 may increase the spread of weeds across the rangelands. In addition, excluding livestock grazing would result in grass litter buildup, which would cause an increase in fire severity and the likelihood of native vegetative communities (e.g., Wyoming big sagebrush communities) being converted into non-native annual grass communities (Davies et al. 2009). While big game species would consume non-native annual grasses during the winter, early spring, and fall, the production of non-native grasses would be variable and, during unfavorable years, there may not be enough grass to support the current big-game herd numbers (Murray and Klemmedson 1968). Adverse, long-term impacts to big game would range from moderate to major, with a moderate to high probability for such impacts.

Neotropical and Migratory Birds and Upland Game Birds

The potential for increased fire severity in Wyoming big sagebrush due to excluding livestock grazing would not be conducive to the habitat needs of neotropical and migratory birds. The conversion of native sagebrush stands into non-native annual grass would reduce the amount of hiding, nesting, and wintering cover that is needed for these species (Vander Haegen et al. 2001b). The level of adverse effects would be dependent on the acreage converted to non-native annual grass, and there would be enough residual forage for upland game habitat needs during most years. Overall, adverse impacts would be long-term and range from minor to moderate.

c. Cumulative Impacts

No Action Alternative

Big Game

Past Actions and Present Actions

Historic records indicate both subspecies of elk were numerous and widely distributed in Oregon prior to arrival of non-native settlers, but their numbers drastically declined during the late 1800s due to extensive hunting. The Oregon Legislature provided protection for elk in 1899 by making it illegal to sell meat from wild animals and by closing elk season from 1909 through 1932. By 1922, elk numbers had increased greatly in Umatilla, Baker, Union, and Wallowa Counties, but authorities did not consider it possible to re-establish elk as a game animal at that time. However, by 1924 there were numerous complaints about competition between elk and domestic livestock. Elk hunting was reestablished in Eastern Oregon in 1933.

The current Baker RMP (BLM 1989) provided management of big game in the Decision Area that directly benefited big game populations. This included through the maintenance/improvement of habitat quality in appropriate GUs, designation of areas for big game habitat management, continued identification of wildlife habitat requirements as other resource activity plans are prepared, development of additional Cooperative Management Agreements with WDFW and ODFW, and inventorying isolated tracts of public land to determine wildlife resource values.

Fluctuations in mule deer populations can be attributed to drought conditions, which reduce forage and cover values, and severe winter weather conditions, which can result in large losses of deer). In contrast, years of adequate moisture and mild winters normally result in increased deer populations. Many mule deer ranges will no longer support historic deer population levels due to reduction of habitat caused by human development and changes in land use (ODFW 2003b). Moderate population increases may be attained in some units with careful management. However, a return to the high deer population levels present in from the 1950s through the 1970s would likely not occur due to changes to habitat (ODFW 2003b).

The BLM currently has several MOUs with ODFW that help maintain and manage big game population on public lands.

Reasonably Foreseeable Future Management

It is reasonable to assume that big game communities would be affected by fire, invasive plants, livestock grazing, climate change, and regulatory agency management. Agencies like Natural Resource Conservation Service (NRCS) and ODFW are currently working with private landowners to protect and establish habitat for big game to maintain their current range. These types of agencies are also working with the BLM to enhance big game habitat. Conserving

and/or restoring habitat for the big game populations on lands adjacent to public lands are important because such actions would reduce fragmentation and expand habitat connectivity. The BLM works with other federal (e.g., USFWS, NRCS), state (e.g. ODFW), and tribal governments, as well as willing private landowners, whenever possible to reduce fragmentation and expand habitat connectivity for wildlife species.

Summary of Impacts to Big Game under the No Action Alternative

Under the No Action Alternative, resource management would lead to a mix of beneficial and adverse impacts to wildlife in the Decision Area. For example, management of perennial grasses under the No Action Alternative would fluctuate yearly due to a lack of minimal stubble height required for residual forage, although a grazing system would allow for rest and rejuvenation of riparian vegetation on selected streams, which would benefit big game habitats. The lack of management actions contributing to the restoration of old-growth structure, canopy closure, and composition would limit the amount of shelter, hiding, and thermal cover for big game (USFS 1979), although not cutting trees 23 inches in diameter would help retain and protect old-growth trees and contribute to overall canopy closure. Managing to minimize conflicts between livestock and big game by adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage would benefit big game.

Recreation objectives under the No Action Alternative would maintain or enhance outdoor recreation opportunities in the Decision Area, which would indirectly have adverse, long-term impacts to big game within specific areas that overlap recreational uses. The lack of management direction on the decommissioning of roads would allow for the continuation of habitat degradation/fragmentation. Making public lands available for ROWs, including future wind energy developments would lead to large-scale modification of habitats and may alter habitat use or vital rates of big game.

Cumulative Impacts to Big Game under the No Action Alternative

The overall cumulative impact, which takes into consideration a mix of beneficial and adverse effects from limited management of big game habitat and adverse impacts from resource uses such as renewable energy development, combined with reductions of big game habitat on private lands in the Planning Area would be long-term, adverse, and range from minor to moderate.

California Bighorn

Past Actions and Present Actions

The spread of disease from domestic sheep and goats led to the extirpation (i.e., local extinction) of bighorn in the Planning Area in the 1940s (ODFW 2003), but they were later reintroduced by ODFW. California bighorn populations are limited because of lack of suitable habitat within the Decision Area and are currently found in the Burnt River Canyon. Populations in the Decision Area have fluctuated locally due to the combined effects of disease, parasites, and weak genetic

diversity. The BLM and ODFW have recognized the affects of domestic sheep and goats in or near bighorn habitats and made efforts to limit or exclude domestic sheep and goat grazing on public lands in proximity of occupied bighorn habitats. The BLM currently excludes sheep and goat grazing within 9 miles of native bighorn habitat, except where topographic features or other barriers minimize physical contact between domestic sheep and goats from occupied bighorn populations (BLM 1998).

To strengthen genetic diversity, ODFW has periodically transplanted bighorns on public lands in the Decision Area. These actions have help stabilize bighorn populations in the Decision Area. However, domestic sheep and goats are not excluded on private lands within close proximity of bighorn occupied habitat, which may lead to further declines due to disease spread.

Currently only one allotment (Pritchard Creek Allotment) has domestic sheep on public lands within the 9-mile buffer of occupied bighorn populations. Although Interstate I-84 separates domestic goat and sheep herds from bighorn populations, in April of 2010, two bighorn ewes were taken by ODFW from public lands to avoid potential disease transmission because the ewes crossed the interstate and traveled through private lands that contain domestic goats and sheep.

Reasonably Foreseeable Future Management

Currently, buffers between domestic livestock and bighorn populations are being reevaluated on state, USFS, and private lands to ensure adequate spacing between wild and domestic populations to reduce potential disease and parasite transmission (Rinks 2010). It can be expected that limitations would continue to be placed on domestic sheep and goats grazing in proximity to bighorn habitat on USFS and BLM lands throughout the Planning Area. In comparison, it is uncertain whether buffers would be enforced between domestic and wild bighorn herds. Assumedly, grazing within private lands would be managed in a way that would benefit the private landowner, which means that domestic sheep and goat grazing would continue on private lands and potentially lead to disease and parasite transmission to bighorn populations.

Summary of Impacts to California Bighorn under No Action Alternative

Domestic sheep use would continue to graze within Pritchard Creek Allotment and private lands within 9 miles of occupied California bighorn habitat under the No Action Alternative. Past monitoring by ODFW indicates that there is a high probability of bighorn and domestic sheep coming into contact on both private and public lands within the Burnt River population. In addition, mineral exploration/extraction and recreational use would continue within occupied bighorn habitat. These uses would cause short-term displacement of bighorn populations and are minor in comparison to potential parasite and disease transmission from domestic sheep and goats.

Cumulative Impacts to California Bighorn under the No Action Alternative

The overall cumulative impact, which takes into consideration beneficial effects as a result of transplanting sheep to increase genetic health, excluding domestic grazing within 9 miles of occupied habitat, and adverse effects from mineral exploration, recreation, lands and realty and domestic sheep grazing on private and public lands within 9 miles of occupied habitat, would be adverse, long-term impacts that would range from minor to major.

Neotropical and migratory birds*Past Actions and Present Actions*

When the current Baker RMP (BLM 1989) was signed in 1989, there was so specific management that addresses neotropical and migratory bird habitat. However, neotropical and migratory birds were and continue to be protected under the Migratory Bird Treaty Act of 1918, which makes it unlawful to pursue, hunt, take, or capture a migratory bird except as permitted by regulation (16 United States Code [USC] 703-704; 50 CFR 21.11). While the act protects migratory birds from direct take of individual birds, it provides little protective measures for habitat. President Clinton signed EO 13186 to integrate bird conservation principals, measures, and practices into agency planning processes to restore, protect, enhance, and manage habitats of migratory birds and prevent the further loss and degradation of habitats. When combined with the Migratory Bird Treaty Act of 1918, EO 13186 would protect the populations and habitats needs for neotropical and migratory birds to complete their life-cycle. Furthermore, the BLM signed an MOU/IM No. 2008-050 with the USFWS that provides interim guidance to enhance coordination and communication toward meeting the BLM's responsibilities under the Migratory Bird Treaty Act and the EO 13186. This interim management guidance establishes a consistent approach for addressing migratory bird populations and habitats when adopting, revising, or amending land use plans, and when making project-level implementation decisions.

Past management actions in the Decision Area that have specifically helped to restore and/or maintain sagebrush steppe and forested habitat have been beneficial for neotropical and migratory birds. Some of these management actions include assessing and changing management if the Decision Area was not meeting Range and Forest Health standards. Presently, the BLM works with other federal (e.g., USFWS, NRCS), state (e.g. ODFW), and tribal governments, as well as willing private landowners whenever possible, to reduce fragmentation and expand habitat connectivity for wildlife species.

Reasonably Foreseeable Future Management

The greatest threat to neotropical and migratory bird population is fragmentation of their seasonal habitats. Although the BLM is trying to restore, promote, and/or maintain sagebrush and forest health within the Decision Area, it is reasonable to assume that some habitat would still be fragmented by development, especially on public lands that are isolated within large blocks of private lands.

Because sage-grouse is considered an umbrella species (i.e., sagebrush obligate species), future restoration efforts aimed at protecting/enhancing sage-grouse habitat would indirectly benefit neotropical and migratory birds within the Planning Area. Some of this type of habitat restoration is taking place on private lands and is expected to continue into the future. Along with private landowners, the BLM would likely continue to work with agencies like NRCS, ODFW, and USFWS to restore public and private lands for sage-grouse (Rowland 2006), which would continue to benefit neotropical and migratory bird species.

Summary of Impacts to Neotropical and Migratory Birds under No Action Alternative

Management direction under the No Action Alternative that would lead a lack of riparian stabilization; yearly fluctuations in perennial grasses yearly due to no minimal stubble height requirements; a lack of restoration of old-growth forest structure, canopy closure, and composition; and little direction in decommissioning of roads would adversely impact neotropical and migratory bird habitats. In addition, making most of the Decision Area available for ROWs, including future wind energy developments, would potentially result in large-scale habitat modification. On the other hand, such adverse impacts would partially be mitigated through implementing grazing systems that provide for rest and rejuvenation of riparian vegetation on selected streams, not cutting trees over 23 inches in diameter, and adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage. Overall, impacts would be adverse, long-term, and range from minor to moderate.

Cumulative Impacts to Neotropical and Migratory Birds under the No Action Alternatives

The overall cumulative impact, which takes into consideration beneficial effects from mandates and legislation protecting migratory birds, management of sage-grouse habitat, adjustments in grazing, and protecting old growth trees, and adverse effects from the management of travel, recreation, forestry, and renewable energy would have adverse, long-term impacts that would range from minor to moderate.

Northern Goshawk

Past Actions and Present Actions

The northern goshawk is considered a species of concern by the BLM and is managed under BLM Manual 6840, which provides general management for the species. The most recent goshawk management IM was signed in 1999, which provided habitat protection measures that greatly reduce habitat degradation. Current management provides many guidelines that are designed to help protect and create habitat, which has proven to be beneficial to goshawks. Some examples include: 1) generally not cutting trees above 23 in DBH, 2) retaining snags within treatment units, 3) conducting surveys prior to any treatment, 4) placing buffers around any goshawk nest within a treatment area, 5) seasonally restricting treatments, and 6) retaining 10 percent of old growth forests throughout the Decision Area.

Past management practices within the Decision Area focused on selective cuts (removing only the highest quality trees) and clear-cutting, which removed most of the large tree component and increased habitat fragmentation on BLM lands. Although there is some evidence goshawks are resilient to forest fragmentation and can reestablish when cleared areas are reforested, the thresholds for population persistence have not been identified (Reynolds et al. 1992; Kennedy 2003).

The USFS have managed the northern goshawk as a sensitive species as well, which has helped to protect potential and occupied habitat within areas that have been treated. Management guidelines and direction stem from recommendations made by Reynolds et al. (1992) and Woodbridge and Hargis (2006). In comparison, private land owners have generally focused more on timber yields, of which past treatments may have impacted occupied goshawk nest sites because mitigation for this species is not enforced.

Reasonably Foreseeable Future Management

It is reasonable to assume that the BLM would continue to work with other federal, state, and tribal governments as well as willing private landowners whenever possible to reduce fragmentation and expand habitat connectivity for northern goshawks. Due to limited forested areas within the Decision Area, conserving and/or restoring habitat for the northern goshawk on lands adjacent to BLM lands would continue to be vital for the management of goshawk habitat. The USFS and private landowners manage the majority of acres of potential goshawk habitat in the Planning Area. Both the BLM and USFS would continue to focus on the retention and protection of goshawk habitat, which would help retain or improve habitat connectivity. In comparison, private landowners tend to focus on the commercial rather than the restorative value of silvicultural treatments; therefore, such treatments would negatively affect northern goshawk habitat.

Summary of Impacts to Northern Goshawks under No Action Alternative

Habitat protection measures under the No Action Alternative, such as protecting nesting sites by establishing buffers, designating treatment practices, and seasonal restrictions would greatly reduce habitat degradation by. Retaining snags and promoting the continued existence of old growth by promoting and restoring historic fire regimes would also benefit goshawk habitat.

On the other hand, timber harvest methods that create large areas of reduced forest canopy cover (less than 35-40 percent) would adversely impact goshawk habitat, and increased recreational facility development and associated activities within goshawk habitat/near goshawk nest sites may disrupt mating and courtship for goshawks. Overall, impacts under the No Action Alternative would be beneficial, long-term, and minor.

Cumulative Impacts to Northern Goshawks under No Action Alternative

The overall cumulative impact, which takes into consideration beneficial effects from habitat protection measures on BLM and adjacent USFS lands and protecting old growth trees and adverse effects from the management of recreation, forestry on BLM lands and adjacent private lands would have beneficial, long-term impacts that would be minor.

Upland game birds*Past Actions and Present Actions*

The mandates and legislation identified above that protect migratory birds have indirectly benefited upland game birds. Past and ongoing management in the Decision Area aimed at helping to restore and/or maintain sagebrush steppe habitats, such as assessing and changing management if the Decision Area was not meeting rangeland health standards, has benefited upland game birds.

Reasonably Foreseeable Future Management

Reasonably foreseeable future management would be similar to that described above for migratory and neotropical migratory birds.

Summary of Impacts to Upland Game Birds under the No Action Alternative

Management direction under the No Action Alternative that would lead a lack of riparian stabilization; yearly fluctuations in perennial grasses yearly due to no minimal stubble height requirements; a lack of restoration of old-growth forest structure, canopy closure, and composition; and little direction in decommissioning of roads would lead to habitat degradation and/or fragmentation. In addition, maintaining or enhancing opportunities for outdoor recreation activities could adversely impact bird habitat within areas overlapping with recreational use. Finally, making most public lands available for ROWs, including future wind energy developments, would potentially result in large-scale habitat modification. On the other hand, such adverse impacts would partially be mitigated through implementing grazing systems that provide for rest and rejuvenation of riparian vegetation on selected streams, not cutting trees over 23 inches in diameter, and adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage. Overall, impacts would be adverse, long-term, and range from minor to moderate.

Cumulative Impacts to Upland Game Birds under the No Action Alternatives

The overall cumulative impact, which takes into consideration beneficial effects from mandates and legislation protecting migratory birds, management of sage-grouse habitat, and adjustments in grazing and adverse effects from the management of travel, recreation, and renewable energy would have adverse, long-term impacts that would range from minor to moderate.

Alternative 1

Big Game

Summary of Impacts to Big Game under the No Action Alternative

Compared to the No Action Alternative, Alternative 1 proposes greater protection measures for big game habitat, including those leading to the recovery of riparian areas that are used for browsing and as travel corridors (Collins and Urness 1983). In addition, Wyoming and mountain big sagebrush communities would be enhanced to provide canopy cover for hiding, thermal, and birthing cover, which would reduce fragmentation and increased habitat connectivity. Big game wintering ranges would be protected by not having a net increase in the number of BLM roads through-out the life of the plan, decommissioning roads and trails causing wildlife resource damage, and making changes in grazing management where grazing is detrimental to wildlife habitat quality. Finally, big game habits would be made secure from direct human disturbance during the breeding, birthing, and winter seasons (i.e., when wildlife is particularly susceptible to harassment) by seasonally limiting human disturbance and/or disturbance by motorized vehicles.

Alternative 1 also sets management direction to reduce habitat fragmentation by maintaining and/or restoring riparian habitat complexity, diversity, and structure, by mitigating development within wildlife travel corridors, and by developing and implementing strategies to ensure that large contiguous patches of sagebrush maintained or improved. In addition, Alternative 1 would meet most of big game needs for hiding cover because a minimum of 30 percent canopy cover would be retained. Furthermore, Alternative 1 sets aside exclusion areas for energy development that would overlap some big game habitat areas and protect important birthing and wintering areas. Finally, designating the Virtue Flat ACEC would protect and exclude all land-use authorizations from 41,823 big game habitat acres. Overall, impacts to big game under Alternative 1 would be long-term, beneficial, and moderate.

Cumulative Impacts to Big Game under the No Action Alternative

Overall, restoring Wyoming big sagebrush for canopy cover, basing perennial utilization on plant growth stages, implementing greater riparian protection, adding hardwood and shrub management, clarifying better management for forested species, and juniper reduction under Alternative 1, when combined with past, present, and foreseeable future actions would have moderate, long-term, beneficial, impacts to big game habitat.

California Bighorn

Summary of Impacts to California Bighorn under Alternative 1

While protection buffers between domestic sheep and goats and bighorns would be the same as under the No Action Alternative, Alternative 1 would involve greater mitigation of mineral exploration/extraction, land-use authorizations, and recreational use in areas that would

negatively impact bighorn habitat. Seasonal road closures and/or surveying habitat prior to establishing roads and trails would help reduce fragmentation of bighorn habitat. Furthermore, Alternative 1 would prohibit domestic sheep and goat grazing in Prichard Creek Allotment if it was found that they were interacting with California bighorn within that allotment, which would reduce the potential for transmission of disease. Transplantations would strengthen genetic diversity and population numbers. Overall, beneficial impacts under Alternative 1 would be long-term and range from minor to moderate.

Cumulative Impacts to California Bighorn under Alternative 1

More focused management protection of California bighorn under Alternative 1 would benefit the species within the Decision Area compared to the No Action Alternative. Although prohibiting domestic sheep and goat grazing in Prichard Creek Allotment if they were posing a threat would eliminate the potential for disease transmission from grazing on public lands, there would remain the threat of disease transmission from livestock being grazed on private lands. Overall, cumulative impacts would be beneficial, long-term, and range from minor to moderate.

Neotropical and Migratory Birds

Summary of Impacts to Neotropical and Migratory Birds under Alternative 1

Compared to the No Action Alternative, Alternative 1 proposes greater protection measures for neotropical and migratory bird habitat, including those leading to the recovery of riparian areas that are used for nesting and as travel corridors (Finch et al. 1991). Enhancing Wyoming and mountain big sagebrush communities would provide canopy cover for hiding, thermal cover, and birthing cover, which reduces fragmentation and increases habitat connectivity. Neotropical and migratory bird wintering ranges would be protected by not having a net increase in the number of BLM roads throughout the life of the RMP due to decommissioning roads and trails causing wildlife resource damage and implementing changes in grazing management that rehabilitates habitat quality. Seasonally limiting human disturbance, including by motorized vehicles, would provide habitats that are secure from direct human disturbance during the breeding, nesting, and winter seasons (i.e., when migratory birds are most susceptible to harassment). Retaining a minimum of 30 percent canopy closure within the treatment area of forested land as cover would be satisfactory for bird species. Setting aside exclusion areas for energy development would overlap with some neotropical and migratory bird habitat areas and protect important nesting and wintering areas. Overall, impacts under Alternative 1 would be long-term, beneficial, and moderate.

Cumulative Impacts to Neotropical and Migratory Birds under Alternative 1

Overall, the cumulative impacts from the greater protection measures for neotropical and migratory bird habitat proposed under Alternative 1, combined with past, present and reasonably foreseeable actions over the Planning Area, would be beneficial, long-term, and moderate.

Northern Goshawk

Summary of Impacts to Northern Goshawks under Alternative 1

Compared to the No Action Alternative, Alternative 1 proposes greater protection measures for northern goshawk habitat by retaining and restoring late-seral stands to conditions as described by USFS, Region 6 (USFS 1993). In addition, following current BMPs, the latest science, and BLM State Office (SO) and Washington Office (WO) direction would ensure adequate canopy cover and snags, which are important goshawk habitat components. Overall, impacts under Alternative 1 would be beneficial, long-term, and moderate.

Cumulative Impacts to Northern Goshawks under Alternative 1

Overall, the cumulative impacts from the greater protection measures for Northern goshawk habitat proposed under Alternative 1, combined with past, present, and reasonably foreseeable actions over the Planning Area, would be beneficial, long-term, and moderate.

Upland Game Birds

Summary of Impacts to Upland Game Birds under Alternative 1

Compared to the No Action Alternative, Alternative 1 proposes greater protection measures for upland game bird habitat, including those leading to the recovery of riparian areas that are used for nesting and as travel corridors (Finch et al. 1991). Enhancing Wyoming and mountain big sagebrush communities would provide canopy cover for hiding, thermal cover, and birthing cover, which reduces fragmentation and increases habitat connectivity. Upland game bird wintering ranges would be protected by not having a net increase in the number of BLM roads throughout the life of the RMP, decommissioning roads and trails causing wildlife resource damage, and implementing changes in grazing management that rehabilitates habitat quality. Seasonally limiting human disturbance, including by motorized vehicles, would provide habitats that are secure from direct human disturbance during the breeding, nesting, and winter seasons (i.e., when migratory birds are susceptible to harassment). Fragmentation of upland game bird habitat would be reduced by maintaining and/or restoring riparian habitat complexity, diversity, and structure; mitigating development within wildlife travel corridors; and by developing and implementing strategies to ensure that large contiguous patches of sagebrush maintained or improved. Exclusion areas set aside for energy development would overlap with some upland game bird habitat areas and protect important nesting and wintering areas. Overall, impacts under Alternative 1 would be long-term, beneficial, and moderate.

Cumulative Impacts to Upland Game Birds under Alternative 1

Overall, the cumulative impacts the greater protection measures for neotropical and migratory bird habitat proposed under Alternative 1, combined with past, present, and reasonably foreseeable actions over the Planning Area, would be beneficial, long-term, and moderate.

*Alternative 2*Big Game*Summary of Impacts to Big Game under Alternative 2*

Alternative 2 has fewer considerations for protecting big game habitat when compared to all other alternatives, including less emphasis on restoration and/or enhancement of big game habitat in the Decision Area unless it would contribute to greater resources yields. Greater resource yields in livestock management, land and realty, forestry management, water resources, and recreational opportunities may not be conducive to the needs of big game habitat. Increasing road densities within Wyoming big sagebrush communities would further fragment and reduce big game habitat (Wisdom et al. 2004; USFS 1979; Rost and Bailey 1979). Retaining a 20 percent canopy cover within forest treatment areas would only provide marginal benefits for big game needs (Cook et al. 1995; Unsworth et al. 1998). Overall, impacts under Alternative 2 would be long-term, adverse, and minor.

Cumulative Impacts to Big Game under Alternative 2

Overall, having fewer considerations for protecting big game habitat due to an emphasis on commodity protection, when combined with past, present, and foreseeable future actions, would have minor, long-term, adverse, impacts.

California Bighorn*Summary of Impacts to California Bighorn under Alternative 2*

Less protection measures would be given to bighorn habitat when compared to the No Action Alternative due to the emphasis on commodity production. For example, land-use authorizations, such as wind development, would be allowed in important birthing areas for bighorns. In addition, mineral exploration/extraction and recreational activities within occupied bighorn habitat could lead to short-term displacement. Overall, impacts would be adverse, long-term, and moderate.

Cumulative Impacts to California Bighorn under Alternative 2

Overall, having fewer considerations for protecting bighorn habitat due to an emphasis on commodity protection, when combined with past, present, and foreseeable future actions, would have minor, long-term, adverse, impacts.

Neotropical and Migratory Birds*Summary of Impacts to Neotropical and Migratory Birds under Alternative 2*

Alternative 2 has fewer considerations for protecting neotropical and migratory bird habitats when compared to all other alternatives, including less emphasis on restoration and/or enhancement of wildlife habitat of the Decision Area unless it would contribute to greater resources yields. Greater resource yields in livestock management, land and realty, forestry management, water resources, and recreational opportunities may not be conducive to the needs of big game habitat. Increasing road densities within Wyoming big sagebrush communities would further fragment and reduce neotropical and migratory bird habitat (Petit et al. 1995; Finch 1991 et al. 2; Hutto 1980). Managing perennial grasses similarly to the No Action Alternative may result in residual grasses that are inadequate for hiding and nesting cover. Retaining a 20 percent canopy cover within forest treatment area would only provide marginal benefits for the needs of neotropical and migratory birds (Finch et al. 1991; Robbins et al. 1989). Overall, impacts under Alternative 2 would be long-term, adverse, and minor.

Cumulative Impacts to Neotropical and Migratory Birds under Alternative 2

Overall, having fewer considerations for protecting neotropical and migratory bird habitat due to an emphasis on commodity protection, when combined with past, present, and foreseeable future actions would have minor, long-term, adverse impacts.

Northern Goshawk*Summary of Impacts to Northern Goshawk under Alternative 2*

While impacts from vegetation and fire management under Alternative 2 would be similar to those described under Alternative 1, impacts from wildlife, forestry, and recreation management would not be as beneficial to goshawks. For example, forestry management under Alternative 2 would focus more on timber yields rather than habitat protection, which would reduce long-term, beneficial impacts to a range of minor to moderate (compared to moderate under Alternative 1).

Cumulative Impacts to Northern Goshawk under Alternative 2

Overall, the cumulative impacts from the reduced protection measures for Northern goshawk habitat proposed under Alternative 2 combined with past, present, and reasonably foreseeable actions over the Planning Area, would be beneficial, long-term, and minor to moderate.

Upland Game Birds*Summary of Impacts Upland Game Birds under Alternative 2*

Impacts would be the same as those described above for neotropical and migratory birds.

Cumulative Impacts Upland Game Birds under Alternative 2

Cumulative impacts would be the same as those described above for neotropical and migratory birds.

Alternative 3Big Game*Summary of Impacts to Big Game under Alternative 3*

Overall, impacts to big game habitat resulting under Alternative 3 would lie somewhere between those described for Alternative 1 and 2. Impacts from road improvements would be similar to Alternative 2, while impacts from stream restoration would fall between Alternative 1 and 2. Overall, impacts would be long-term, beneficial, and minor.

Cumulative Impacts to Big Game under Alternative 3

Overall, having limited considerations for protecting big game habitat due to an emphasis on recreation, when combined with past, present, and foreseeable future actions, would have minor, long-term, beneficial impacts.

California Bighorn*Summary of Impacts to California Bighorn under Alternative 3*

Overall impacts under Alternative 3 would be similar to Alternative 2, although adverse impacts from recreational use would be reduced due to added mitigation efforts that would benefit bighorns. Adverse impacts would thereby be reduced to negligible to minor.

Cumulative Impacts to California Bighorn under Alternative 3

Overall, having limited considerations for protecting big game habitat due to an emphasis on recreation, when combined with past, present, and foreseeable future actions, would have minor, long-term, adverse impacts.

Neotropical and Migratory Birds*Summary of Impacts to Neotropical and Migratory Birds under Alternative 3*

Overall, impacts to Neotropical and migratory bird habitats resulting from the implantation of Alternative 3 would lie somewhere between those described for Alternative 1 and 2. Impacts from road improvements would be similar to those identified Alternative 2, while impacts from the amount of proposed stream restoration would fall between Alternative 1 and 2. Overall, long-term, adverse impacts under Alternative 2 would remain minor.

Cumulative Impacts to Neotropical and Migratory Birds under Alternative 3

While there would be limited considerations for protecting big game habitat due to an emphasis on recreation, combining the management direction proposed under Alternative 3 with past, present, and foreseeable future actions would result in minor, long-term, beneficial impacts.

Northern Goshawk*Summary of Impacts to Northern Goshawks under Alternative 3*

Impacts would be the same as those described under Alternative 1.

Cumulative Impacts to Northern Goshawks under Alternative 3

Cumulative impacts would be the same as those described under Alternative 1.

Upland Game Birds*Summary of Impacts to Upland Game Birds under Alternative 3*

Impacts would be the same as those described above for neotropical and migratory birds.

Cumulative Impacts to Northern Goshawks under Alternative 3

Cumulative impacts would be the same as those described above for neotropical and migratory birds.

Alternative 4Big Game*Summary of Impacts to Big Game under Alternative 4*

Impacts would be similar to Alternative 1, although more intense and extensive due to added protection to big game habitat. For example, setting a light upland utilization target of 21-40 percent for all grazing allotments would ensure adequate perennial grasses for foraging (Griffith and Peek 1989). Setting the target for riparian stubble height at 6-8 inches would ensure adequate residual forbs and grasses for big game foraging in late summer. More intense measures proposed under Alternative 4 to conserve and restore Wyoming big would further reduce fragmentation of big game habitat, while more intense efforts to reestablish bitterbrush would increase the availability of winter browse. Overall, the intensity of long-term, beneficial impacts would increase to a moderate to major range.

Cumulative Impacts to Big Game under Alternative 4

Overall, following similar protections to big game habitats as proposed under Alternative 1, as well as providing greater protection and/or restoration of Wyoming big sagebrush, setting light utilization levels and conservative riparian stubble heights, and implementing more intense efforts at planning bitterbrush under Alternative 4, when combined with past, present, and foreseeable future actions, would have moderate to major, long-term, beneficial, impacts to big game habitat.

California Bighorn*Summary of Impacts to California Bighorn under Alternative 4*

Alternative 4 offers greater protective measures to California bighorn when compared to the No Action Alternative and Alternative 1. This is achieved by having greater buffers (30 miles compared to 9 miles) around occupied bighorn populations from domestic sheep and goat grazing, which would drastically decrease the likelihood of transmission of parasites and disease from domestic sheep and goats. Overall, beneficial, long-term impacts under Alternative 4 would range from moderate to major.

Cumulative Impacts to California Bighorn under Alternative 4

More intense protection of bighorn sheep habitat under Alternative would add to beneficial cumulative impacts. While 30-mile buffers would nearly eliminate disease transmission from domestic goat and sheep grazing on public lands, there would remain the treat of disease transmission from livestock being grazed on private lands. Overall, cumulative impacts would be beneficial, long-term, and range from moderate to major.

Neotropical and Migratory Birds*Summary of Impacts to Neotropical and Migratory Birds under Alternative 4*

Impacts would be similar to those described under Alternative 1, although greater protection measures proposed under Alternative 4 would increase the intensity and extent of such impacts. For example, setting a light upland utilization target of 21-40 percent for all grazing allotments would ensure adequate perennial grasses for foraging (Griffith and Peek 1989). Setting the target for riparian stubble height at 6-8 inches would ensure adequate residual forbs and grasses for wintering and nesting cover. More intense measures proposed under Alternative 4 to conserve and restore Wyoming big sagebrush would further reduce fragmentation of neotropical and migratory bird habitat. Overall, the intensity of long-term, beneficial impacts would increase to a moderate to major range.

Cumulative Impacts to Neotropical and Migratory Birds under Alternative 4

Overall, the cumulative impacts of the greater protection measures for neotropical and migratory bird habitat proposed under Alternative 4, combined with past, present and reasonably foreseeable actions over the Planning Area, would be beneficial, long-term, and moderate to major.

Northern Goshawk*Summary of Impacts to Northern Goshawks under Alternative 4*

Impacts would be similar to those described under Alternative 1, except that beneficial impacts would be more extensive due to retaining 35 percent cover during forest treatment efforts. Long-term, beneficial impacts would remain moderate.

Cumulative Impacts to Northern Goshawks under Alternative 4

Overall, cumulative impacts would be similar to those described under Alternative 1.

Upland Game Birds*Summary of Impacts to Upland Game Birds under Alternative 4*

Impacts would be similar to those described under Alternative 1, although greater protection measures proposed under Alternative 4 would increase the intensity and extent of such impacts. For example, setting a light upland utilization target of 21-40 percent for all grazing allotments would ensure adequate perennial grasses for foraging (Griffith and Peek 1989). Setting the target for riparian stubble height at 6-8 inches would ensure adequate residual forbs and grasses for wintering and nesting cover. More intense measures proposed under Alternative 4 to conserve and restore Wyoming big sagebrush would further reduce fragmentation of neotropical and migratory bird habitat. Overall, the intensity of long-term, beneficial impacts would remain in the moderate to major range.

Cumulative Impacts to Upland Game Birds under Alternative 4

Overall, cumulative impacts would be similar to those described under Alternative 1.

Alternative 5 and 5aBig Game*Summary of Impacts to Big Game under Alternatives 5 and 5a*

Overall, impacts under Alternative 5 would be similar to those described in Alternative 4, except benefits would be experienced at a slower rate because a less active restoration

emphasis would be used. Due to the lack of grazing, impacts under Alternative 5a may be more adverse due to an expected increase the spread of weeds on the rangelands and potential increased fire intensities, frequency, and size, which would permanently remove Wyoming big sagebrush and reduce native grasses and forbs from the annual grass community. Removing livestock grazing could potently reduce elk numbers (Anderson and Scherzinger 1975) and forage quality (Clark et al. 2000) because plants that are not grazed during certain times may get "wolfy" and unpalatable. However, there would be enough residual forage for big game consumption. Overall impacts would be long-term, adverse, and minor.

Cumulative Impacts to Big Game under Alternatives 5 and 5a

Overall, having a more passive restoration emphasis and greatly reducing or completely removing livestock grazing from the Decision Area, combined with past, present, and reasonably foreseeable actions over the Planning Area, would result in adverse, long-term, minor cumulative impacts.

California Bighorn

Summary of Impacts to California Bighorn under Alternatives 5 and 5a

Impacts under Alternatives 5 and 5a would be similar to Alternative 4, although some impacts may be more extensive due to larger buffers that would be provided to protect sage-grouse. Such buffers would indirectly benefit bighorn habitat by excluding some land-use authorizations (e.g., exclusion for wind energy development) within such habitat. Excluding grazing of domestic sheep and goats within all allotments in the Decision Area would prohibit the probability of parasite and disease transmission from domestic sheep and goats on public lands to bighorn populations.

Cumulative Impacts to California Bighorn under Alternatives 5 and 5a

Although protection buffers would increase slightly under Alternative 5 and 5a, the overall cumulative impacts would remain long-term, beneficial, and moderate to major in magnitude. Although all grazing would be excluded under Alternative 5, prohibiting any transmission of disease from domestic sheep and goats on public lands to bighorn sheep, domestic livestock use, including by sheep and goats, would likely shift to private lands, adversely impacting bighorn populations. Overall, cumulative impacts would thus be the same as identified under Alternative 4.

Neotropical and Migratory Birds

Summary of Impacts to Neotropical and Migratory Birds under Alternatives 5 and 5a

Overall, impacts under Alternative 5 would be similar to those described in Alternative 4, except benefits would be would be experienced at a slower rate because less active restoration emphasis

would be used. Due to the lack of grazing, impacts under Alternative 5a may be more adverse due to an expected increase the spread of weeds on the rangelands and potential increased fire intensities, frequency, and size, which would permanently remove Wyoming big sagebrush and reduce native grasses and forbs from the annual grass community. However, there would be enough residual forage for migratory nesting and wintering cover and consumption. Overall, impacts would be long-term, beneficial, and minor.

Cumulative Impacts to Neotropical and Migratory Birds under Alternatives 5 and 5a

Overall, having a more passive restoration emphasis and greatly reducing or completely removing livestock grazing from the Decision Area, combined with past, present, and reasonably foreseeable actions over the Planning Area, would result in adverse, long-term, minor, cumulative impacts.

Northern Goshawk

Summary of Impacts to Northern Goshawks under Alternatives 5 and 5a

Overall, impacts under Alternative 5 would be similar to those described in Alternative 4, except benefits would be experienced at a slower rate because less active restoration emphasis would be used. For example, limited active management within forested ecosystems may not be sufficient at protecting old-growth forest ecosystems from catastrophic fire, insects, and disease outbreaks. Such events would reduce goshawk habitat, resulting in adverse, long-term, moderate impacts.

Cumulative Impacts to Northern Goshawks under Alternatives 5 and 5a

Limiting management in forested ecosystems could reduce habitat for the northern goshawk. Consequently, cumulative impacts would be long-term, adverse, and moderate.

Upland Game Birds

Summary of Impacts Upland Game Birds under Alternatives 5 and 5a

Impacts would be the same as described above for neotropical and migratory birds.

Cumulative Impacts to Upland Game Birds under Alternatives 5 and 5a

Cumulative impacts would be the same as described above for neotropical and migratory birds.

9. SPECIAL STATUS SPECIES (PLANTS)

Twenty-six special status plant species have been documented on BLM lands in the Planning Area (See Table 3.29 in Chapter 3). These species are considered Sensitive by the BLM and

they are proactively managed (BLM 2003; BLM 2008a). The extent of their distribution is unknown due to the lack of strategic inventories. In addition, there are 71 sensitive plant species suspected to occur in the Planning Area (see Appendix 3.3). While it is possible that any of these sensitive plant species and the three federally listed plant species suspected to occur in the Decision Area could be documented on BLM lands in the future, only the 26 documented Sensitive plants are considered for this analysis. It is anticipated that over the life of this plan some new special status plant species would be added to the current list and that some special status plants would probably be removed from the list.

Because many special status plants have very narrow habitat requirements and a low tolerance for disturbance, even small modifications to their environment can lead to pronounced effects on the species. This is especially the case for a number of the Decision Area special status plants that are limited to very isolated populations in unique habitats (e.g., 18 of the 26 Sensitive plant species are limited to the Rogersburg Area of southeastern Washington, primarily on or near Lime Hill, due to the unique geologic features of the area).

Impacts to special status species from other management programs in the Decision Area include those that cause loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weedy species, and direct mortality of individuals. Ground-disturbing actions that alter vegetation characteristics (e.g. structure, composition, and/or production) have the potential to affect habitat suitability for special status plants, particularly where the disturbance removes or reduces cover and increases rates of erosion. Trampling by livestock or crushing by vehicles driving off road can lead to mortality of individual special status plant species, or contribute to soil compaction and erosion, which can cause indirect adverse impacts.

a. Indicators, Methods, and Assumptions

Special Status Plants Methods

To analyze the potential effects of the alternatives on special status plants, information was gathered from the Geographic Biotic Observations Database (BLM's rare species database) existing inventories, state heritage database files, relevant scientific literature, and other sources identifying the potential distribution of these species in and adjacent to the Decision Area. The analysis is also based on professional expertise of BLM specialists at the Baker FO, knowledge of the area, and a review of the relevant scientific literature. Complete habitat inventories have not been done for the Sensitive plant species described in Chapter 3 and the extent of their distributions within the Planning Area is unknown. A more detailed description of the effects methodology used can be found in BLM's National Environmental Policy Act (NEPA) Handbook (BLM, 2008b). One of the goals of this analysis is to determine management actions that will foster the conservation of special status plants (BLM 2005a - Land Use Planning Handbook).

Special Status Plants Assumptions

This impact analysis for special status plants in the Decision Area is based on the following assumptions:

- No conservation strategies have been completed for any of the special status plants that occur on the Decision Area.
- Each special status plant's rangewide distribution is not considered as part of this effects analysis.
- The geographic scope of this analysis is the Decision Area, except for Cumulative Impacts. The BLM does not have control over the management of special status species that occur off BLM lands. Still the lack of management for these special status plants on private land ownership can affect those species on BLM lands.
- Nineteen of the 26 Sensitive plant species that occur in the Decision Area are endemic species with limited distributions that do not extend widely beyond the Decision Area.
- Special status species habitat on BLM lands would be managed, protected, and conserved (BLM 2003; BLM 2008a).
- All ground-disturbing activities in special status plant habitats would include mitigation to reduce impacts to special status species and their habitat. Analysis of impacts and effects determinations would include all mitigation measures.
- Prior to any ground-disturbing activity, a special status species review would occur to determine whether any such species would be present in the project area.
- The Decision Area includes lands in both Washington and Oregon. The State Director's Special Status Species List is based upon each state's Natural Heritage Program's rarity ranking for each species. Thus, a species status will often vary from Washington to Oregon.

Special Status Plants Indicators

The indicators for special status plants include population demographics, species' rangewide distribution, habitat quality and distribution, fecundity, pollinator status, presence of invasive species, threats and impacts to the species, existence of recovery or conservation strategies or other formalized conservation planning tools, and changes in fire frequency and intensity.

Magnitude of Impacts to Special Status Plants

Impacts to special status plants are quantified where possible. In absence of quantitative data, the best professional judgment based upon a review of the scientific literature and BLM data was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

<i>Negligible:</i>	The impacts on special status plants would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to individuals or the population as a whole.
<i>Minor:</i>	The impacts on special status plants would be detectable but localized, small, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse effects, would be simple and successful.
<i>Moderate:</i>	The impacts on special status plants would be readily detectable and localized, with potential consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be applied extensively and would probably be successful.
<i>Major:</i>	The impacts on special status plants would be obvious and would result in substantial consequences to the populations in the region. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed. Actions that would likely result in effects of this severity to special status species would not be authorized or undertaken.

The duration of impacts to special status species are defined as follows:

<i>Short-term:</i>	A change in a resource or its condition would generally last less than a single year or season.
<i>Long-term:</i>	A change in a resource or its condition would last longer than a single year or season.

b. Impacts to Special Status Plants

Impacts to special status plants in the Decision Area would result from actions proposed under the following resource management programs:

- Climate Change
- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Special Status Species (Plants)
- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Lands and Realty (Land Use Authorizations)
- ACECs
- Travel and Transportation

Impacts Common to All Alternatives***Impacts from Climate Change***

Global climate change was not an issue addressed by the current Baker RMP (BLM 1989). It is an emerging concern with new policy being issued directing the agency's activities and prescribing methods to reduce these emissions. These policies and BMPs that are now coming out would still be implemented under the No Action Alternative. The BLM also has other policies in place that directs us to manage for resilient plant communities that should be less susceptible to climate change impacts. Two climate change management actions would have beneficial impacts to special status plants. These two management actions are part of current policy and would be implemented under the No Action Alternative. One Climate Change management action states: "*Promote vegetation management activities and projects that reduce the intensity and fire size of future wild fires.*" This management direction can be found in the National Fire Plan (USFS and BLM 2001), which directs federal land management agencies to "*reduce the risks of catastrophic wildland fire to people, communities, and natural resources while restoring forest and rangeland ecosystems to closely match their historical structure, function, diversity, and dynamics. Such treatments accomplish these goals by removing or modifying wildland fuels to reduce the potential for severe wildland fire behavior, lessen the post-fire damage, and limit the spread or proliferation of invasive species and diseases.*" The implementation of this management action would help to reduce future losses of big sagebrush plant communities, which are important habitat for special status plants. Another Climate Change management action states: *Early Detection-Rapid Response (EDRR) strategies would be aggressively applied to limit the establishment of new populations of invasive plant species.* The BLM is currently directed to follow this policy under its Integrated Pest Management Handbook (BLM 2006c, BLM and USFS 2007, and BLM 2008c). The implementation of this management action would help to reduce the abundance and distribution of noxious weeds that can out-compete special status plants for resources. Both of these management actions would have long-term, moderate, beneficial impacts on special status plants.

No Action Alternative***Impacts from Vegetative Communities***

The two primary areas of impacts under Vegetative Communities are in the Wyoming sagebrush communities and juniper woodlands. Both of these plant communities were not issues of concern under the current Baker RMP (BLM 1989). Four of the Sensitive plants occurring on the Decision Area are primarily restricted to Wyoming big sagebrush plant communities. The No Action Alternative does not have a management action to restore Wyoming big sagebrush plant communities. These sites are threatened by increasing fire frequencies and intensities (altered fire regimes) and encroachment by weedy non-native plants. Wyoming big sagebrush sites that are impacted by fires would be more likely to convert to weedy annual grasses under the No Action Alternative. Nonnative weedy plants can outcompete special status plants for the resources that are present on the site. The loss of sagebrush overstory would also alter the

microclimate of the site, potentially making it unfavorable for the special status plants that occur there. The lack of restoration of these sites under the No Action Alternative would have long-term, moderate to major impacts on the special status plants that are dependent on these habitats.

Although juniper encroachment was not identified as an issue in the current Baker RMP (BLM 1989), the BLM has proceeded to treat and reduce its encroachment over the last 10 years. Approximately 4,000 to 5,000 acres of juniper have been treated on the Decision Area over the last 10 years. The BLM is directed to reduce hazardous fuel loadings on the lands that they manage under various policy documents including the National Fire Plan (USFS and BLM 2001), and the President's Healthy Lands Initiative (BLM 2007). The BLM is also directed to enhance habitat for special status species (BLM 2008a), including the enhancement of sagebrush habitats for sagebrush obligate species that can require the removal of encroaching junipers (BLM 2004).

Juniper control involves felling juniper trees and treating the slash residue by burning, hauling off site for biomass, or chipping the material on site. These activities have the potential to impact special status plants by uprooting, burying, consuming them in a fire, or altering the microclimate of the site. After the overstory tree canopy is removed from these sites, there is potential for invasion by weedy plants. Conversely, the passive conversion of sagebrush dominated plant communities to juniper woodlands could alter these sites to where they no longer are habitat for special status plants. Reducing juniper encroachment in sagebrush steppe habitats could be beneficial to special status plants over the long term.

Juniper reduction would have little impact on the currently documented special status plants based upon the current juniper coverage map. This GIS coverage may under represent the distribution of juniper on the Decision Area. Only portions of three occurrences of Snake River goldenweed overlap with mapped juniper stands. There is also a small overlap of a mapped juniper stand with the proposed Denny Flat ACEC. Areas of juniper control would still need to have special status plant surveys completed and the effects analyzed under site-specific NEPA analysis. We do not have a complete inventory of special status plant species on the Decision Area. Additional special status plant species could occur in areas of juniper control.

Impacts from Invasive Plants and Noxious Weeds

Noxious weeds can alter site conditions making sites unfavorable for special status plants. Indirect effects of noxious weeds on special status plants include changes in fire frequency and intensity, increased competition reducing native plant abundance and distribution, and changes in soil structure and soil microbial composition. Noxious weeds can also release allelopathic substances that can inhibit the growth and germination of special status plants. Noxious weed control using herbicide application can directly remove special status plants, if they are indiscriminately applied where these plants occur. The completion of pre-treatment special status plant surveys, as recommended in the SOPs for Applying Herbicides (BLM 2010), should reduce the potentially adverse impacts of herbicide application to special status plants.

Under the No Action Alternative, noxious weed control would occur based upon site-specific needs and environmental analysis. Proper grazing management would be emphasized after weed control to limit re-infestation. Although the current Baker RMP (BLM 1989) did not specify the need for restoration of weed treatment sites to prevent re-infestation, it is still the agency's current policy (BLM and USFS 2007). Weed treatments would be guided by Integrated Pest Management (IPM) techniques as directed by BLM policy (BLM and USFS 2007, BLM 2006c, BLM 2008c). IPM techniques are a combination of biological, cultural, physical, and chemical methods to control invasive species. The BLM is directed to "control invasive species while conserving and promoting beneficial organisms and natural processes that would inherently suppress potential pest populations" (BLM and USFS 2007, BLM 2006c, BLM 2008c). This is the current direction for weed management on the district. Thus, weed treatment sites would continue to be evaluated for their need to be reseeded as directed by BLM policy (BLM and USFS 2007, BLM 2008c, BLM, 2006c).

The lack of prioritization of weed sites for treatment based on special management concerns under the No Action Alternative could adversely affect special status plants. Sites supporting special status plants are not a priority for treatment under the No Action Alternative. The lack of focus on reducing the spread of noxious weeds into special status plant habitats could have adverse, long-term, moderate impacts on special status plants within the Decision Area.

Impacts from Special Status Species (Plants)

The management of special status plants is hindered by our lack of knowledge of the habitat requirements, distribution, pollinator status, and population trends for these species. This lack of knowledge reduces our ability to formulate the detailed management actions to conserve and protect these species that we are required to (BLM, 2008a). The lack of detailed management recommendations for each special status plant species has long-term, moderate to major impacts on these species.

While the No Action Alternative includes little direction for the management of special status plant species, as identified in Chapter 2, current policy found in IM OR-2003-054 (BLM 2003) directs Oregon and Washington offices of the BLM to manage for the conservation, protection, and restoration of special status plants. Adherence to this policy could reduce most potential negative impacts from management actions to special status plants.

Impacts from Fire and Fuels Management

Wildfire and its associated suppression techniques (e.g., fireline construction, safety zone construction, and lighting backfires) can directly remove individual special status plants. Indirect impacts of wildfire and its suppression on special status plants include reduction in native plant abundance and distribution, changes in species composition, increased nutrient availability, and alteration of light regimes through removal and mortality of overstory plants, fertilization through the application of fire retardant, and transport of noxious weed propagules on equipment. These activities can have long-term, adverse, minor impacts.

All special status plants that occur on the Decision Area have evolved with some frequency and intensity of wildfire. Fire can alter a plant community's species composition and distribution thereby reducing competition and making the site more favorable for special status plants. These plants should in general respond favorably to wildfire that is within the natural range of variability for these events. It is unknown how these special status plants would respond to the more frequent and higher intensity wildfires that occur in what were formerly Wyoming big sagebrush plant communities. These low elevation big sagebrush communities are being converted to annual rangelands because of more frequent wildfires (Knick 1999; Knapp 1996; Mack 1981; Anderson and Inouye 2001; Bunting et al. 2002), which would have long-term, moderate, adverse impacts on special status plants that occur in these habitats.

The No Action Alternative allows the use of prescribed and wildfire to maintain a site's native plant community. The use of fire to perpetuate and rejuvenate native plant communities could have long-term, beneficial impacts to special status plants, except in Wyoming big sagebrush sites. These plant communities have been altered by livestock grazing and the proliferation of weedy non-native plants. These changes in Wyoming big sagebrush plant communities often prevent their return to native plant communities post-fire (Knick 1999; Knapp 1996; Anderson and Inouye 2001; Billings 1994; Bunting et al. 2002; D'Antonio and Vitousek 1992). The loss of sagebrush overstory on these sites can change the microclimate by reducing shading, and increasing winds, which can increase the ground temperature (Rosentreter 1994). The loss of sagebrush overstory can also alter soil morphology, increase organic matter decomposition rates (Norton et al. 2004) and reduce the deep soil recycling of nutrients and water that is done by sagebrush (Rosentreter 1994). These changes in ecological processes can impoverish these sites and make them very hard to restore (Norton et al. 2004; Norton et al. 2007). In addition, the increase in non-native plants can outcompete the special status plants that occur on these sites. The loss of sagebrush cover can have long-term, moderate to major, adverse impacts on the special status plants that occur in these habitats.

Impacts from Forestry and Woodland Products

Forest management modifies forest vegetation through changes in species composition, tree and shrub density, and abundance and distribution of snags and down woody debris. Direct impacts from forestry management to special status plants include the direct removal of individuals by equipment or tree removal. Indirect impacts from forestry management include changes in light regimes and water availability due to overstory tree removal, soil compaction caused by heavy equipment, and transport of weed seed by equipment. Since only a single occurrence of one special status plant, Mingan's island moonwort, has been documented in a commercial forest area of the Decision Area, adverse impacts from forest management activities would be minor. There is, however, the potential for additional special status species to be found in forest treatment areas. Pre-disturbance surveys for special status plants in areas of planned forest management would be completed under the No Action Alternative and, if special status plants were found, mitigation measures would be applied in the project area to reduce or avoid impacts to such plants as required by BLM policy (BLM 2003). This would reduce the potential adverse impacts to special status plants from forest management activities.

Impacts from Livestock Grazing

Livestock grazing directly affects special status plants through consumption, trampling, removal of propagules, and defoliation of individual plants. Indirect impacts from livestock grazing include fertilization through defecation and urination, transport of non-native weed propagules, increased shrub cover through selection of understory plant species, and changes in plant community species composition. Livestock grazing can also affect both surface and sub-surface water flows, by directly altering water movement through modification of channels and indirectly by removal riparian vegetation and reducing bank stability. The magnitude of these potential impacts to water flows would depend on the timing and intensity of grazing. Such adverse impacts would be most intense in areas of livestock concentration, such as salting, watering, and trailing areas.

Due to Hunt Mountain ACEC being excluded from grazing, two Sensitive plants documented to occur only in this ACEC (American thorn wax and country Indian paintbrush) would experience no or negligible impacts from livestock grazing. In addition, bartonberry is a Sensitive plant that occurs in very steep, cliffy, and talus areas of Hell's Canyon within the Homestead ACEC. These steep, cliffy areas are not often utilized by livestock. Grazing would thus also have negligible impacts on bartonberry under the No Action Alternative.

With the exception of the three special status plants mentioned above, the majority of special status plants would be exposed to livestock grazing related impacts under the No Action Alternative. This includes all 18 occurrences of special status plants in the Lime Hill area of Grande Ronde ACEC (where grazing would continue) and Cusick's lupine at Denny Flat. The negative impacts to special status plants caused by ongoing livestock grazing would be both short- and long-term and their magnitude would be minor to moderate.

All occurrences of Snake River goldenweed on public lands in the Decision Area would remain within active grazing allotments under the No Action Alternative. The Institute for Applied Ecology (Kaye 2002) found from their permanent monitoring transects of Snake River goldenweed that grazing reduces the plant's size, number of flowers, and population growth rates. Because Snake River goldenweed flowers late in the season, late summer grazing would have the greatest impacts, as it would reduce the flower production of plants. The negative impact of late season grazing on Snake River goldenweed would be both short- and long-term and moderate.

Impacts from Minerals

Mining and mine development can directly affect special status plants by removing individual plants. Mining activities can also drastically alter a site's conditions by removing topsoil and vegetation, which can make the site inhabitable for special status plants. Indirect effects of mining on special status plants include the transport and spread of noxious weed propagules on mining equipment, soil contamination due to discharge of fuels and other industrial products, and habitat fragmentation.

Five special status plant locations on the Decision Area occur within active mining claims, two of which are located within the Hunt Mountain ACEC. Under the No Action Alternative, Hunt Mountain ACEC would remain open to mining. The remaining three special status plant sites within current mining claims that could be affected by mining under the No Action Alternative are Snake River goldenweed sites, two of which are located in the Conner Creek drainage and one is located within the Dixie Creek drainage. Mining activities at these sites could directly remove individual plants or the substrate where the plants grow, and possibly alter the site so that it is no longer habitat for the special status plant species. These would be long-term, moderate, negative effects to special status plants.

Impacts from Recreation

Direct impacts to special status plants from recreation include the trampling and uprooting of plants, collection of plants or plant parts, and crushing or removing plants due to the construction of recreation facilities. Indirect impacts include increased distribution of weed seeds, increased dust distribution, and increased areas of bare soil. Most of the documented special status plant sites on the Decision Area do not overlap with high use recreation areas. The two exceptions to this are plant locations along the Grande Ronde River and at Denny Flat. Impacts to the special status plants along the Grande Ronde River from recreationists (mainly boaters and anglers) could include trampling, uprooting plants, and transport of non-native weedy plants. These impacts would be minor. Impacts from OHV use would be negligible in the ACEC as such use would be limited to designated roads and trails.

Denny Flat is a popular OHV area. Under the No Action Alternative, the five documented occurrences of Cusick's lupine would be exposed to impacts from OHV use. Direct effects of OHV use could include uprooting and removal of individual plants, trampling of plants, and removal of plant parts. Indirect effects of OHV use would include increased spread of non-native weedy plants, increased dust distribution, which can clog plants' stomata reducing transpiration; increased erosion, and loss of top soil. These moderate, adverse impacts would be both short- and long-term.

Impacts from Lands and Realty (Land Use Authorizations)

Renewable energy consists of wind, hydro, and solar developments as well as the power lines, roads, and infrastructure required to develop these facilities. At the writing of this Draft RMP/EIS, only hydropower has been developed and wind energy development has been proposed for BLM lands in the Planning Area. There is no known proposed new hydropower development on the Decision Area. Still, previous dam development on the Snake River has reduced habitat for Snake River goldenweed, Northwest raspberry, wax current, Snake River Canyon desert parsley, and bartonberry.

Wind energy developments can affect special status plants during site monitoring and testing, initial site construction, and/or site operation. Site monitoring and testing would have minimal impacts, unless road construction and excavation are required. Impacts from site construction

would be of moderate magnitude and could be both short- and long-term. Impacts from operation and maintenance effects would be moderate, but would occur over the long term (i.e., over the life of the facility).

Site construction activities related to wind energy development that may affect special status plants include the clearing and grading of vegetated areas for tower and infrastructure construction, utility corridors, and access roads; assembly of the turbines and towers; construction of transmission line towers; and refueling of construction equipment (BLM 2005). Road access requirements often necessitate construction of or widening existing two-track roads to accommodate the large 18-wheeled semi-trucks hauling in tower components. Construction of these wider access roads can require large areas of cut slopes especially in areas of steep terrain. These large cut slopes can promote erosion and provide a seedbed for non-native plants. Direct effects of these activities on special status plants would be increased mortality, disruption of soil seedbeds, and reduced available habitat, which may be long-term and localized to the immediate project area.

Indirect impacts that may be more widespread include the introduction of invasive vegetation into disturbed areas of the wind energy project site, access routes, and transmission corridors, and in surrounding areas. The resultant competition with native plant communities, including those containing special status plants, could reduce the distribution and abundance of such communities and individual special status plants. Other indirect impacts include perpetuation of seral plant communities through mowing, increased vehicle public and private traffic, increased release and deposit of fugitive dust, increased erosion and runoff, and exposure to contaminants. The modification and loss of special status plant habitats caused by the development of wind energy can result in habitat fragmentation for special status plants. Road construction can open up new areas to vehicle traffic increasing OHV use, which can bring in more noxious weed propagules. Increased OHV traffic can uproot and displace special status plants. Fugitive dust can coat leaf cuticles causing damage to the plant's leaf surface as well as clogging stomata and reducing the transpiration ability of special status plants. Mowing reduces overstory plant canopy cover changing the microclimate for special status plants.

Site maintenance and operation activities that can affect special status plants include mowing, herbicide use, and accidental releases of pesticides, fuels, or hazardous materials. Increased use of surrounding public lands, resulting from additional access corridors (via new access roads and utility and transmission corridors) could also affect vegetation through direct injury to vegetation, the legal and illegal removal of plants, the introduction of invasive vegetation, and an increased potential for fire (BLM 2005).

Only one special status plant species, Snake River goldenweed, would be affected by known applications to develop and test for wind energy due to its location. Current applications would affect eight of the 52 locations for Snake River goldenweed on the Decision Area. As these wind facilities are analyzed under NEPA and site specific plant surveys are completed in the project's vicinity (as recommended by BLM 2005), it is likely that additional special status plant species

would be found within these areas of wind energy development. In the short term, wind energy development at the Snake River goldenweed sites would affect the species through habitat modification and the proliferation of non-native weedy plants that could be brought into the sites by construction and maintenance equipment, which could then outcompete goldenweed for resources and reduce its abundance. Increased abundance of non-native annuals could also increase the fire frequency and intensity at these sites, further threatening the Snake River goldenweed populations. Additional road construction and improvement could increase public use of these areas increasing weed seed deposition to these areas and possibly increasing uprooting and disruption of the Snake River goldenweed plants. Direct impacts would be the loss of individual Snake River goldenweed plants. Such impacts would reduce the viability of these Snake River goldenweed locations due to the loss of individual plants in the population. Impacts would be of moderate to major magnitude and would be long-term.

The No Action Alternative proposes to exclude the locations of ROWs in WSAs and WSR sections. This would affect four locations of green-band Mariposa lily located in the Grande Ronde WSR section. This would limit potential for ROWs to have negative impacts to these four green-band Mariposa lily locations, such as increased vehicle traffic from new roads increasing soil disturbance and the spread and proliferation of non-native weedy plants. The exclusion of ROWs on this very limited area would have long-term, minor, beneficial impacts on special status plants.

Impacts from ACECs

Areas of Critical Environmental Concern and RNAs are designated for the protection and conservation of their relevant and important values, which can include the presence of special status plants. The ACEC/RNA designation thus provides a means of recognizing that special status plants occur in the area and implementing special management to ensure their persistence. Future NEPA analysis of any proposed activities in the designated ACEC/RNAs would consider the effects on the special status plants that occur there. Any authorized activities would need to maintain the relevant and important special status plant populations. This proactive management for special status plants would help to conserve these rare species.

Table 4-5 summarizes the number of known special status plant locations by species and the number of locations that are in ACECs by alternative, including the No Action Alternative. Of the 26 special status plants documented to occur on the Decision Area, 21 would occur within ACECs under the No Action Alternative. In terms of the total number of documented occurrences of special status plants on the Decision Area, 49 (42 percent) would occur within ACECs under the No Action Alternative. Habitat for sensitive plant species, including American thorn wax and Country Indian paintbrush, would be specifically protected as a relevant and important value in the Hunt Mountain ACEC. This would ensure that the only known occurrences of these two special status plant species in the Decision Area would be maintained. Impacts to the identified populations of special status plants would be beneficial, long-term, and moderate, with potentially similar impacts to any other special status plant populations that may be documented as occurring in these ACECs in the future. Sensitive plant habitats would also be

protected in the Homestead ACEC under Alternative 1, which would provide protection for the Bartonberry that occurs there.

Common Name	Scientific Name	Total number of locations	# of documented locations in an ACEC by Alternative					
			No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Cross-haired rockcress	<i>(Arabis crucisetosa)*</i>	4	4	4	4	4	4	4
Arthur's milk vetch	<i>(Astragalus arthurii)*</i>	2	2	2	2	2	2	2
Asotin milk vetch	<i>(Astragalus asotinensis)*</i>	1	1	1	1	1	1	1
Cusick's milk vetch	<i>(Astragalus cusickii var. cusickii)*</i>	5	5	5	5	5	5	5
Oregon bolandra	<i>(Bolandra oregana)*</i>	1	1	1	1	1	1	1
Mingan's Island moonwort	<i>(Botrychium minganense)</i>	1	0	0	0	0	0	0
American thorum wax	<i>(Bupleurum americanum)</i>	1	1	1	0	1	1	1
Green-band Mariposa-lily	<i>(Calochortus macrocarpus var. maculosus)*</i>	14	14	10	10	14	14	14
Country Indian paintbrush	<i>(Castilleja flava var. rustica)</i>	1	1	1	0	1	1	1
Fee's lip-fern	<i>(Cheilanthes feei)</i>	1	1	1	1	1	1	1
Engelmann's daisy	<i>(Erigeron engelmannii var. davisii)*</i>	1	1	1	1	1	1	1
Cronquist's stickseed	<i>(Hackelia cronquistii)*</i>	1	0	0	0	0	0	0
Rough stickseed	<i>(Hackelia hispida var. hispida)*</i>	3	3	3	3	3	3	3
Rollins' lomatium	<i>(Lomatium rollinsii)*</i>	3	3	3	3	3	3	3
Snake River Canyon desert parsley	<i>(Lomatium serpentinum)*</i>	3	3	3	3	3	3	3
Cusick's lupine	<i>(Lupinus lepidus var. cusickii)*</i>	5	0	5	0	0	5	5
Cusick's monkey flower	<i>(Mimulus cusickii)</i>	1	1	1	1	1	1	1
Stalked-Leaved monkey flower	<i>(Mimulus patulus)*</i>	1	1	1	1	1	1	1
Tufted evening primrose	<i>(Oenothera caespitosa ssp. marginata)</i>	2	2	2	2	2	2	2
Rocky Mountain rockmat	<i>(Petrophytum caespitosum var. caespitosum)</i>	1	1	1	1	1	1	1
Palouse goldenweed	<i>(Pyrrocoma liatrifomis now P. scaberula)*</i>	1	1	1	1	1	1	1
Snake River goldenweed	<i>(Pyrrocoma radiata)*</i>	52	0	1	0	1	1	1
Wax currant	<i>(Ribes cereum var. colubrinum)*</i>	1	1	1	1	1	1	1
Bartonberry	<i>(Rubus bartonianus)*</i>	1	1	1	1	1	1	1
Northwest raspberry	<i>(Rubus nigerrimus)*</i>	1	1	1	1	1	1	1
Biennial Stanleya	<i>(Stanleya confertiflora)*</i>	10	0	0	0	0	0	0
Total Special Status Plant Documented Occurrences		118	49	51	43	50	55	55

*Endemic species of limited distribution

No documented special status plants would be given special protection through RNA designation under the No Action Alternative. This includes the 17 Sensitive plant species within the Lime Hill area of the Grande Ronde River ACEC. While the ACEC designation would provide some added protection for special status plants, such measures may not be adequate to protect sensitive plants in the Lime Hill area from certain impacts, such as impacts from livestock grazing because their presence would not be considered part of the ACECs' relevant and importance values under the No Action Alternative.

No new ACEC/RNAs would be designated under the No Action Alternative, including those that would be designated to protect special status plants. This would leave Cusick's lupine in the Denny Flat area susceptible to direct impacts from continued unrestricted OHV use, such as uprooting and/or crushing of individual plants. Indirect impacts would include the increased spread and establishment of non-native weeds due to reduced vegetation cover, which could compete with Cusick's lupine for resources and thus limit its distribution. All 52 locations of Snake River goldenweed would be subjected to ongoing livestock grazing which is documented to reduce Snake River goldenweed plants' size, number of flowers, and population growth rates (Kaye 2002) without the protection offered by ACEC/RNA designation to protect at least one of these documented occurrences.

Impacts from Travel and Transportation

The No Action Alternative allows for open usage on 287,611 acres for OHV use. This is the largest open travel area for all alternatives. OHV traffic can have adverse, short- and long-term impact on special status plants. See the discussion under Impacts from Recreation for a detailed description of these potential impacts. Travel within the Grande Ronde ACEC is limited to existing roads and trails resulting in negligible impacts to the special status plants that occur here. Denny Flat would be designated an open travel area under the No Action Alternative. The Cusick's lupine that occurs at Denny Flat would be subject to the negative impacts from the unlimited OHV access. In addition, there would be the potential for increased transport of non-native weedy plant propagules by the greater area open to OHV travel under the No Action Alternative. The impacts from proposed Travel and Transportation management actions would have the greatest negative short- and long-term, moderate impacts to special status plants under the No Action Alternative.

Impacts Common to all Action Alternatives

Impacts from Invasive Plants and Noxious Weeds

Both applying integrated weed management treatments under all Alternatives to areas where non-native weedy plants are encroaching on special status plant habitats and assuring that weed treatments would not adversely affect special status plants would reduce the potential for weed encroachment to alter special status plant habitats. Controlling weeds using mechanical, biological, cultural, and chemical treatments, and identifying habitats for special status plant species and ACECs as high priority treatment areas would also help to reduce the impacts of

noxious weeds on special status plant habitats. Such actions would have long-term, minor, beneficial impacts on special status plants, eliminating the adverse impacts from the lack of prioritization identified under the No Action Alternative. See *Impacts from Special Status (Plants)* Section for additional management actions that affect Invasive Plants and Noxious Weeds.

Impacts from Fire and Fuels Management

Impacts would be similar to those identified under the No Action Alternative, with the following exception. Having a resource advisor familiar with area management objectives and sensitive resource values and ensuring local BLM fire suppression personnel are aware of special resource concerns within the Decision Area would help to reduce the damage to special status plant habitats caused by wildfire suppression identified under the No Action Alternative. The magnitude of impacts to special status plants cannot be accurately assessed due to the inherent unpredictability of wildfires. See *Impacts from Special Status (Plants)* Section for additional management actions that affect fire and fuels management.

Impacts from Minerals

Impacts to the three locations of Snake River goldenweed that occur in active mining claims would be the same as described under the No Action Alternative.

Alternative 1

Impacts same as under the No Action Alternative

- Impacts from Forest and Woodland Products

Impacts from Vegetative Communities

Juniper reduction efforts under Alternative 1 would have similar impacts to those described under the No Action Alternative.

The focus on maintaining and increasing the abundance and distribution of Wyoming big sagebrush under Alternative 1 would be beneficial for the four special status plant species that occur in this plant community. Maintaining sagebrush cover on these sites would maintain the microclimate and reduce the potential for weedy plant encroachment. The emphasis on restoration of Wyoming big sagebrush sites under Alternative 1 could reduce the moderate to major impacts under the No Action Alternative to minor magnitude under Alternative 1. See *Impacts from Special Status (Plants)* Section for additional management actions that affect Vegetative Communities.

Impacts from Special Status Species (Plants)

Avoiding actions that cause concentrated use or disturbance (e.g., trampling, OHV use, road construction, range improvements) in special status plant habitats would reduce these management actions' adverse impacts to special status plants. Specifically, it would reduce damage to Cusick's lupine habitat at Denny Flat from OHV use. Indiscriminate OHV traffic running over and uprooting plants would be reduced. Not locating range improvements (which concentrate livestock use) in Snake River goldenweed habitats would reduce trampling, consumption, and the proliferation of non-native plants at Snake River goldenweed sites. However, these beneficial, short- and long-term impacts to special status plants would be minor.

Under Alternative 1, where special status plant species could be conserved and habitat connectivity improved, lands would be acquired through land tenure adjustments, easements, and inter-agency cooperation. Such acquisitions would help assure that land tenure adjustments benefit special status plants. Since private landowners are not required to manage their lands for the conservation or protection of special status species, acquiring more special status plant locations and placing them under BLM management would help assure that special status plants on these sites would receive greater protection. In addition, aggregating special status plant locations under BLM ownership would allow for more cohesive management of these habitats and populations.

The application of pesticides to control undesirable insects can adversely affect special status plants by eradicating the insects that pollinate special status plants. The avoidance of pesticide application within one-quarter of a mile of occupied habitat, unless it would be clearly beneficial to special status plants, would help to reduce adverse impacts to special status plants' pollinators caused by pesticide application.

Avoiding the use of earth-moving equipment to build fire line in known special status plant populations except in cases where human life or private property is threatened would also help reduce adverse impacts of fire suppression activities compared to the No Action Alternative.

The prohibition against seeding in occupied special status plant habitats, unless it is clearly beneficial to special status plants, would help reduce damage to special status plant habitats. Seeding is often accomplished using rangeland drills in areas where the terrain and topography is conducive. Rangeland drills cause high rates of soil disturbance and can uproot plants remaining on the site and provide an open soil seedbed, which promotes the establishment of weedy plants. Nonnative weedy plants can outcompete and displace special status plants. The seeded species themselves can also provide competition with the established special status plants that occur on the site.

The identification of special status plant habitat parameters, pollinators, and pollinator habitat requirements would help to improve the management for these species by improving our knowledge of special status plant habitat requirements, which would lead to the development of the required management actions to conserve these species. This would reduce the potential

impacts to special status plants from moderate to major under the No Action Alternative to minor under Alternative 1.

The reintroduction of special status plants at a site where their population is in decline would help to maintain the species' spatial distribution and thus its viability. Coupled with maintaining adequate quantities of special status plant seeds or propagules in an approved seed storage facility, this would provide material to be used to reintroduce a species to a site where it has been extirpated or in decline. The implementation of these management actions would have long-term, major, beneficial effects on special status plants.

The implementation of all the Special Status Plant management actions under Alternative 1 would help to reduce potential adverse impacts to special status plants. In addition, the implementation of these management actions would provide additional beneficial impacts to special status plants over the No Action Alternative. The designations of the ACEC/RNAs for special status plants with special management actions to protect these species would provide additional beneficial impacts for special status plants.

Impacts from Livestock Grazing

Impacts to bartonberry and the two special status plants documented to occur in the Hunt Mountain ACEC would be the same as identified under the No Action Alternative (i.e., negligible). Under Alternative 1, an additional 19 Sensitive plant species documented in the Decision Area would be protected from adverse impacts from livestock grazing due to being located in RNAs/ACECs where livestock grazing would be restricted to being consistent with ACEC values (see Impacts from ACECs below). This includes 17 species protected in the Lime Hill RNA in the Grande Ronde River ACEC, Engelmann's daisy in the Mount Wilson RNA, and Cusick's lupine protected in Denny Flat ACEC. As a result, 22 of the 26 Sensitive plant species documented to occur on the Decision Area would experience negligible impacts from livestock grazing. In addition, one occurrence of Snake River goldenweed would be protected in the Snake River Goldenweed ACEC. The short- to long-term, minor to moderate impacts described for livestock grazing under the No Action Alternative would be reduced to negligible under Alternative 1 for these 22 Sensitive plant species.

The impacts of livestock grazing on Mingan's Island moonwort, Biennial Stanleya, and Cronquist's stickseed that are not protected from grazing would be the same as those described under the No Action Alternative. This also includes all occurrences of Snake River goldenweed except the one that would be protected within the proposed Snake River Goldenweed ACEC under Alternative 1.

Impacts from Minerals

Impacts to the two Sensitive plant species in Hunt Mountain ACEC would be greatly reduced, as a withdrawal from mineral entry would be pursued for the entire ACEC, which would be the greatest degree of protection for the special status plants on Hunt Mountain that can be achieved.

This does not reduce potential impacts from minerals management in the ACEC to negligible, as there are still two active mining claims within the Hunt Mountain ACEC which somewhat overlap with the Sensitive plant locations there. Thus, there is potential for moderate, long-term impacts to the special status plants that occur within Hunt Mountain ACEC from the existing mining claims there.

Impacts from Recreation

Under Alternative 1, impacts from designating Lime Hill and Mount Wilson RNAs in the Grande Ronde River ACEC would add extra protection to the special status plant species exposed to impacts from recreation by recognizing the importance of the special status plants and providing special management to protect them from recreation-related impacts. See *Impacts from ACECs* section for a description of how this would occur.

Denny Flat ACEC would be designated under Alternative 1 and OHV travel would be limited to designated trails and roads that avoid Cusick's lupine sites. In addition, seasons of OHV use would be limited to times when the soils are not wet and thus less susceptible to damage and erosion. Such management actions would greatly reduce both the direct and indirect adverse impacts from OHV use on the five documented occurrences of Cusick's lupine at Denny Flat. Impacts would be beneficial and minor to moderate in magnitude.

Impacts from Lands and Realty (Land Use Authorizations)

Impacts from Land Use Authorization would be the same as those described under the No Action Alternative with the exception of Exclusion Areas. Alternative 1 designates 71,052 acres of Exclusion Areas for all land use authorizations including energy development. These exclusion areas include four green-band Mariposa lily locations that are within the Grande Ronde WSR section. In addition, a portion of the one bartonberry location on the Decision Area is within an exclusion area as well. These Exclusion Area designations would reduce any of the potential negative effects to these special status plants at these locations that were discussed under the No Action Alternative to negligible. The designation of exclusion areas under Alternative 1 would have long-term, minor, beneficial impacts to special status plants.

Impacts from ACECs

Under Alternative 1, 23 of the 26 sensitive plant species documented in the Decision Area would occur within ACECs, with 51 (43 percent) of the total documented locations of Sensitive plants in the Decision Area being located in ACECs (Table 4-5). While these numbers do not differ dramatically with those under the No Action Alternative, 19 of the Sensitive plant species within ACECs would also receive special protection from RNA designation (compared to no special status plants in RNAs under the No Action Alternative). The Lime Hill and Mount Wilson RNAs would be designated within the Grande Ronde River ACEC, which would provide additional special protection to 18 sensitive plant species. Designation of the Snake River Goldenweed ACEC/RNA would protect one occurrence of Snake River goldenweed from

livestock grazing related impacts. The Denny Flat ACEC would also help protect Cusick's lupine from noxious weeds, juniper control, and OHV related impacts. The ACEC/RNA designations would recognize the unique value of these special status plants and only uses and activities that enhance or maintain these relevant and important values would be permitted in these areas. Future NEPA analysis of any proposed activities in the designated ACEC/RNAs would require the maintenance of the relevant and important values of the special status plants that occur there. This proactive special management for these special status plants would help to conserve these rare species and have long-term, beneficial impacts to special status plants.

As discussed under Cumulative Impacts, climatic change could adversely affect at least 19 of the 26 Sensitive plant species that occur on the Decision Area. Such impacts would be reduced due to the proactive special management for 23 of these rare species due to ACEC/RNA designation. It is impossible to accurately estimate the magnitude of this reduction due to the lack of data on how special status plants would respond to these altered habitats.

Impacts from retaining the designations of Hunt Mountain and Homestead ACECs would be similar to those described under the No Action Alternative, with the exception that added protection for special status plants would be provided from additional fire and weed-related management actions.

Special status plants would be identified as part of Joseph Creek ACECs relevant and important values under Alternative 1, which would provide long-term, beneficial impacts for special status plants by only allowing uses and activities that enhance or maintain the relevant and important special status plant values.

The implementation of the management actions addressing recreation in the Lime Hill and Mount Wilson RNAs would reduce the potential for recreation to have negative impacts to special status plants in this area. A requirement that specifically mandates the avoidance of special status plant locations when constructing recreation trails would reduce the potential for recreationists to trample special status plants. Additionally, camping would be limited so as not to have negative impacts on the relevant and important values of these RNAs. This would reduce the potential for campers to trample or uproot special status plants.

Impacts from Travel and Transportation

Impacts to special status plants from travel and transportation under Alternative 1 would be less than those described under the No Action Alternative. The Cusick's lupine at Denny Flat would have reduced OHV traffic due to this area being designated as OHV traffic limited to existing road and trails. There would be reduced potential for non-native weedy propagule transport and thus reduced potential for new weedy plant infestations, which could have negative impacts on special status plants.

*Alternative 2*Impacts same as under Alternative 1

- Impacts from Lands and Realty (Land Use Authorizations)

Impacts from Vegetative Communities

Compared to the No Action Alternative, Alternative 2 would result in reduced management for Wyoming big sagebrush. Alternative 2 calls for a reduction of Wyoming sagebrush canopies in areas where they exceed 20 percent. Reduction of sagebrush canopies could have negative impacts on those special status plants that could occur in these areas. This could have minor to moderate, adverse impacts on the four Sensitive plant species that occur in Wyoming big sagebrush plant communities. Areas where sagebrush is lost would also only be reclaimed at a 1:1 ratio under Alternative 2. Overall, Alternative 2 would result in reduced sagebrush cover compared to the other Action Alternatives. This would result in similar impacts as those identified under the No Action Alternative, although impacts may be slightly less because Alternative 2 does propose some restoration of sagebrush that has been lost, while the No Action Alternative proposes no restoration for lost sagebrush.

Impacts from Special Status Species (Plants)

Impacts from Special Status Plant management actions under Alternative 2 would be much the same as those described under Alternative 1, but with one exception. There is no management action to identify special status plant habitat parameters and pollinator habitat requirements under Alternative 2. This lack of knowledge would reduce the BLM's ability to develop detailed management recommendations to conserve these species. The lack of understanding of Special Status Plant habitat requirements would eliminate the beneficial impacts to special status plants identified under Alternative 1.

Impacts from Forestry and Woodland Products

There would be an increase in soil disturbance and increased potential for special status plants to be uprooted or disturbed by logging equipment under Alternative 2, due its emphasis on maximizing the timber volume harvested. There would also be an increased potential for weed seed transport on logging equipment and somewhat greater amounts of bare soil for weedy plant establishment would be available. Overall, the direct, indirect, and cumulative, long-term impacts by forest management to special status plants would only be slightly more negative than those described under Alternative 1 due to the fact that there has been only one occurrence of one special status plant found in commercial forestlands on the Decision Area.

Impacts from Livestock Grazing

Impacts would be the same as described under the No Action Alternative, with the exception of additional impacts stemming from allowing livestock grazing on Hunt Mountain, where American thorn wax and country Indian paintbrush occur. Hunt Mountain ACEC would not be designated under Alternative 2, and this area would be open to livestock grazing. Livestock grazing in these areas could directly affect individuals of these two species through consumption, defoliation, and trampling. Indirect impacts could include increased bare ground in areas of livestock concentration, as well as increased spread and transport of non-native weed seeds that could establish and outcompete the special status plants. Such adverse impacts to the locations of special status plants on Hunt Mountain would be moderate and both short- and long-term.

There are no documented special status plants in the acquired lands in the Grande Ronde ACEC, which would be grazed under Alternative 2. As a result, there would be no impacts to currently documented special status plants by livestock grazing on these acquired lands.

Impacts from Recreation

Impacts to special status plants from recreation would be the same as described under Alternative 1, except for the Cusick's lupine that occurs at Denny Flat. Impacts to special status plants in the Denny Flat Area would be the same as those identified under the No Action Alternative because the area would not be designated as an ACEC under Alternative 2.

Impacts from ACECs

Under Alternative 2, 19 of the 26 Sensitive plant species documented on the Decision Area would occur within ACECs, with 43 of the total documented occurrences of Sensitive plants in the Decision Area (36 percent) being located in ACECs (Table 4-5). This is the least amount of ACEC protection provided to special status plants among all the alternatives. Alternative 2 would provide RNA protection to 18 Sensitive plant species with the designation of Lime Hill and Mount Wilson RNAs in the Grande Ronde River ACEC, which is more than under the No Action Alternative but less than under Alternative 1. Impacts from designating these RNAs would be the same as described under Alternative 1.

Hunt Mountain ACEC would not retain its ACEC designation under Alternative 2, which could adversely affect the occurrences of American thorn wax and country Indian paintbrush by eliminating special management actions that have been in place to protect them. For instance, the plants would become exposed to livestock grazing, which would mean greater defoliation and more trampling of these special status plants. The livestock grazing would also provide increased nutrient input to the site, which would provide fertilization for any non-native weedy plants that the livestock brought into the area. The livestock would also increase the amount of bare ground in the area, creating more habitats for non-native plants.

Impacts from not designating the Snake River Goldenweed and Denny Flat ACECs would be the same as described under the No Action Alternative.

The lack of special management for the Cusick's lupine at Denny Flat, all Snake River goldenweed sites, American thorn wax and country Indian paintbrush that occur on Hunt Mountain would expose these plants to increased impacts from noxious weeds, OHVs at Denny Flat only, livestock grazing, and mining. These negative impacts would be both short- and long-term and moderate.

Impacts from Travel and Transportation

Both Alternative 2 and 3 have the largest acreages in the Open category of the action Alternatives. The greater acreage in the Open category would allow for increased spread of non-native plants, which can have negative impacts on special status plants. See the discussion under Impacts from Recreation under the No Action Alternative.

Alternative 3

Impacts same as under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Plants)
- Impacts from Fire and Fuels Management
- Impacts from Forestry and Woodland Products
- Impacts from Livestock Grazing
- Impacts from Minerals
- Impacts from Lands and Realty (Land Use Authorizations)

Impacts same as under Alternative 2

- Impacts from Recreation
- Impacts from Travel and Transportation

Impacts from ACECs

Under Alternative 3, 22 of the 26 Sensitive plant species documented in the Decision Area would occur within ACECs, with 50 (42 percent) of the total documented locations of Sensitive plants on the Decision Area being located in ACECs (Table 4-5). This is more special status plant species receiving special ACEC protection than under the No Action Alternative and Alternative 2, but less than under Alternative 1. Eighteen of the Sensitive plants in ACECs would also experience added protection from RNA designation, which is one less than under Alternative 1 and one more than under Alternative 2. The added ACEC/RNA protection would be due to the

designations of Lime Hill and Mount Wilson RNAs in the Grande Ronde River ACEC and the Snake River Goldenweed ACEC/RNA. Impacts from designating these ACEC/RNAs and maintaining the Hunt Mountain ACEC would be the same as described under Alternative 1. Impacts from not designating Denny Flat ACEC would be the same as described under the No Action Alternative.

Alternative 4

Impacts same as under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Plants)
- Impacts from Fire and Fuels Management
- Impacts from Forestry and Woodland Products
- Impacts from Minerals
- Impacts from Recreation
- Impacts from ACECs

Impacts from Livestock Grazing

Impacts would be similar to those identified under Alternative 1, with the exception that impacts to Snake River goldenweed would be reduced as allotments with 12 Snake River goldenweed locations would be excluded from grazing under Alternative 4. Thus, 13 of the 52 (25 percent) Snake River goldenweed sites would have no adverse impacts from livestock grazing. This includes the Snake River Goldenweed ACEC/RNA. This would result in approximately a 25 percent reduction of the moderate magnitude livestock impacts to Snake River goldenweed described under the No Action Alternative.

Impacts from Travel and Transportation

Alternative 4 has the largest acreage in the closed Travel category. This alternative would help to limit the spread of non-native weedy plants by reducing the area that can be traveled by OHVs. This alternative designates Virtue Flat as a closed area, unlike the other Alternatives. No special status plants are currently documented to occur in the Virtue Flat ACEC. Special status plants could be found to occur there in the future or newly designated species could be found to occur there. The designation of a closed travel area for Virtue Flat would have beneficial, short- and long-term impacts on any future special status plants that are found there.

Impacts from Lands and Realty (Land Use Authorizations)

Negative impacts from Land Use Authorizations would be less than those described under Alternative 1 due to the addition of Denny Flat ACEC as an Exclusion Area under Alternative 4.

This would add protection to the Cusick's lupine that occurs at Denny Flat from the negative impacts associated with energy development. See the discussion of these impacts under the *Impacts from Lands and Realty (Land Use Authorizations)* under the No Action Alternative. In addition, the Virtue Flat ACEC would be designated as an Exclusion Area. While no current special status plants have been documented to occur in the Virtue Flat ACEC, this Exclusion Area could possibly provide protection for new special status plants that are listed in the future. The designation of the Denny Flat ACEC as an Exclusion Area would have long-term, beneficial, major impacts on the Cusick's lupine that occurs there. Otherwise, impacts from Land Use Authorizations would be the same as those described under Alternative 1.

Alternative 5

Impacts same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Plants)
- Impacts from Fire and Fuels Management
- Impacts from Forestry and Woodland Products
- Impacts from Minerals
- Impacts from Recreation
- Impacts from Travel and Transportation
- Impacts from ACECs

Impacts from Vegetative Communities

Vegetative Communities effects to special status plants would be greater than those analyzed under Alternative 1 due to prohibiting the use of rangeland seed drills, imprinters, cultipackers, or other ground-disturbing heavy equipment, which can increase seeding success by planting seed at the proper depth and increasing seed contact with the soil. The less intensive restoration of Wyoming big sagebrush plant communities under Alternative 5, would assure that highly degraded sites would most likely never be reclaimed. Wyoming sagebrush sites are often converted to communities of annual grasses after they have been burned, which changes the soil properties of the site and makes it inhospitable for the establishment of desirable perennial plant species. These sites have crossed a threshold where their ecosystem processes have been disrupted and plant diversity greatly reduced. It is probable that the altered conditions at the special status plant sites would not be suitable habitat for the rare plants that have occurred there, unless they are actively and intensively restored. Alternative 5 does specify an increased rate of 3:1 for sagebrush restoration in areas where sagebrush has been lost, although the prohibition against any ground disturbing restoration techniques makes the success of this increased restoration highly unlikely. Prohibiting ground disturbing restoration techniques on Wyoming sagebrush sites would have long-term, moderate impacts on the four Sensitive plant species in the Decision Area that are known to occur in such habitats.

Impacts from Livestock Grazing

Livestock grazing would have the same effects on special status plants as those analyzed under Alternative 4.

Livestock grazing would have no effects on special status plants under alternative 5a, because no livestock grazing is authorized under this alternative. This would reduce the minor to moderate impacts of livestock grazing described under the No Action Alternative to negligible and would be beneficial for special status plants.

Impacts from Lands and Realty (Land Use Authorizations)

Impacts from Land Use Authorizations would be less than those described under Alternative 4 due to the addition of all ACECs as Exclusion Areas under Alternative 5. This would provide additional protection for all special status plants that occur in ACECs from the negative impacts from Land Use Authorizations (discussed under Land Use Authorizations under the No Action Alternative). This would result in long-term, beneficial, major impacts to special status plants.

c. Cumulative Impacts

No Action Alternative

Special Status Plants can occur on any land ownership, but only those occurrences that are on federal lands have laws and agency policies that require the BLM to manage for these species. However, effects to special status plants can occur across land ownerships. Pollinators can transport pollen from locations on one land ownership to another. Management for pollinators on one land ownership can influence plant performance on another land ownership. Nonnative weedy plant populations can have negative impacts on special status plants, and these weedy plant populations can spread from other land ownerships onto the Decision Area. Thus, impacts to special status plants can extend beyond the Decision Area, but there are no laws that require private lands to be managed for special status plants.

Oregon/Washington BLM's special status species designation is based upon the state rarity rank assigned by either the Oregon or Washington Natural Heritage Programs (BLM 2007b). Seventeen of the 26 Sensitive plants that are documented to occur on the Decision Area are currently documented to occur in both Washington and Oregon. Twelve of the sensitive plant species that occur in both Washington and Oregon have no current interagency status in either Washington or Oregon. Thus, there is no detailed location information for these 12 Sensitive plants in either Washington or Oregon, making any kind of detailed analysis of cumulative impacts to these species throughout the Planning Area impossible. In addition, 18 of the 26 Sensitive plants are endemics whose distribution is centered on the Snake River and also occur in ID, which is beyond both the Decision and Planning Area boundaries. This effects analysis would have the greatest biological value for these species if it covered their rangewide

distribution. Unfortunately, we do not have the detailed rangewide distribution information for these species to complete the effects analysis for these species throughout their range.

A few general observations on cumulative impacts to these species across the Planning Area can be made. Eight of the Oregon Sensitive plants that occur on the Decision Area are documented to occur on the Wallowa Whitman National Forest as well. These eight taxa (Mingan's Island moonwort, American thorn wax, green-band Mariposa lily, Fee's lip fern, Engelmann's daisy, Palouse goldenweed, country Indian paintbrush, and Bartonberry) would have proactive management to conserve and maintain these Sensitive plant locations on USFS lands as required by agency policy. Four of these Sensitive plants (Mingan's Island moonwort, Fee's Lip Fern, Engelmann's daisy, and Bartonberry) that have only one documented occurrence on the Decision Area have more locations on the Wallowa Whitman National Forest. It is also highly probable that additional special status plant species would be found on the Decision Area and that some special status plants would come off the list throughout the life of this plan. Special status species lists are dynamic and are typically updated every 2 years.

The greatest cumulative impacts to special status plants would occur in the Wyoming big sagebrush plant communities. This plant community is quickly being converted to non-native annual grasslands. This conversion could be accelerated by global climate change. Increased abundance of non-native plants can outcompete special status plants for resources, reducing the abundance and distribution of the special status plant. There are four special status plants that occur in Wyoming big sagebrush habitats: Snake River goldenweed, Cusick's lupine, Cronquist's stickseed, and biennial Stanleya. All occurrences of these four species on BLM lands within the Planning Area are found within current active grazing allotments.

Past actions that have reduced and fragmented the habitats for special status plants of sagebrush habitats on BLM lands include construction of Brownlee Dam, construction and maintenance of Interstate 84, other county and BLM road construction, and maintenance, powerline and gas pipeline ROWs, construction, and maintenance. Past actions that have modified the habitat of special status plants of sagebrush habitats include livestock grazing, seeding rangelands with non-native grasses, spraying herbicides and pesticides, and conversion of sagebrush steppe to annual rangelands.

Present and future actions that affect special status plants of sagebrush habitats include renewable energy development, livestock grazing, noxious weed treatments, and powerline and road construction. All of these actions would have both short- and long-term effects on special status plants.

The most influential driver of future effects on special status plants would be global climate change. The future effects of global climate change on special status plants are difficult to gauge and to quantify. Endemic plant species with limited distributions and that require specialized habitats would be at greatest risk (Hawkins et al. 2008 Foden et al. 2008). Endemic species do not tend to have as high a level of genetic diversity as their more common congeners

(Gitzendanner and Soltis 2000; Karron 1987). The reduced genetic diversity often found in endemic plants could make them less able to adapt to changing environments (Barrett and Kohn 1991; Hawkins et al. 2008). It is probable that the 19 endemic Sensitive plant species that occur on the Planning Area would have less of their preferred habitat available in the future. There would be greater competition with other (non-native and native) plant species that are better adapted to the altered climates and soils that would result from climate change.

The special status plant undergoing the greatest negative cumulative impacts is the Snake River goldenweed. This may be due to its greater abundance on the Planning Area than other species. Three of the Snake River goldenweed sites are in active mining claims, and four sites are in areas of proposed wind energy development. In addition, portions of four Snake River goldenweed sites are within proposed wind energy testing areas. Thus, eleven of the 52 Snake River goldenweed locations are in areas that can probably anticipate mortality of individuals and loss of habitat from wind energy and mining development. Furthermore, 21 percent of the Snake River goldenweed locations in the Decision Area would likely have reduced viability. Snake River goldenweed is a regional endemic whose distribution is centered on Lime, Oregon. The majority of locations in Oregon are in southern Baker County with a few in northern Malheur County. This is the total extent of the species' distribution in Oregon. Snake River goldenweed is restricted to calcareous soils in big sagebrush and grassland communities. It would probably not have the genetic variability to adapt to the changing climate and the altered habitat of its big sagebrush plant community. It is probable that this reduction of viability of 21 percent of the Snake River goldenweed sites would reduce the viability for this species across its range. These cumulative impacts to Snake River goldenweed would be long-term and moderate to major in magnitude.

Alternative 1

Under Alternative 1, 43 percent of the current known Sensitive plant locations on the Decision Area are in ACECs (conservation areas) with special management actions to help perpetuate these species. All documented occurrences of 21 of the 26 Sensitive plant species that occur on the Decision Area are in ACECs under Alternative 1 (Table 4-5). Thus, 81 percent of the 26 Sensitive plants that occur on the Decision Area occur only in ACECs under Alternative 1. Only four Sensitive plant species do not have most of their occurrences in ACECs under Alternative 1. The majority of the Sensitive plant species that occur on the Decision Area are in ACECs with special management actions to help perpetuate these species under this Alternative. The establishment and continuation of these ACECs for special status plants would provide long-term, beneficial impacts for these species. Thus, the cumulative negative impacts described under Alternative 1 would be less than those described under the No Action Alternative. There would be reduced impacts to Cusick's lupine from OHV traffic, reduced recreation impacts to the special status plants at Lime Hill, one occurrence of Snake River goldenweed would not be impacted by livestock grazing, and four locations for Green-band Mariposa lily would not have negative impacts from the location of energy developments. In addition, mineral development impacts to the special status plants that occur on Hunt Mountain would also be reduced. See the related Impacts Sections above for a more detailed description of these reduced impacts.

Quantitative monitoring would be required to determine if special management recommendations are sufficient for the persistence of the special status species that occur on the Decision Area. The implementation of the management action for special status plants, which requires monitoring to confirm the continued presence of special status plant populations and the status of their pollinator species, would provide a tool for determining when special status plants are in decline at a site and reintroduction should be considered.

Alternative 2

Cumulative negative effects would be greater than those described under Alternative 1, due to the additional impacts of livestock grazing on the two Sensitive plants that occur on Hunt Mountain and the lack of special management for Cusick's lupine and Snake River goldenweed.

Alternative 3

All cumulative impacts described under Alternative 1 would apply to Alternative 3. In addition, there would no special management for Cusick's lupine at the proposed Denny Flat ACEC. One Snake River goldenweed location would be protected in an ACEC. Thus, cumulative impacts to special status plants would be greater under Alternative 3 compared to Alternative 1, but less than under Alternative 2.

Alternative 4

Cumulative impacts to currently documented locations of special status plants under Alternative 4 would be less than those described under Alternative 1. Most all cumulative impacts described under Alternative 1 would apply to Alternative 4. The one exception is the livestock grazing on Snake River goldenweed sites. Twenty-five percent of the Snake River goldenweed sites would be excluded from grazing. Thus, the impacts of livestock grazing on Snake River goldenweed would be reduced by 25 percent under this Alternative compared to Alternatives 1-3. Overall Alternative 4 would have the greatest positive impacts on special status plants.

Alternatives 5 and 5a

Cumulative negative effects to special status plants under Alternative 5 would be greater than those described under Alternative 4. There would be greater impacts from the limitation on the tools available for active restoration of Wyoming big sagebrush plant communities, which would reduce the probability of success for these restoration efforts. Thus, there would be less available Wyoming sagebrush habitat for the special status plants that occur there.

No livestock grazing would be authorized under Alternative 5a. This would result in less trampling and consumption of special status plants, as well as fewer new noxious weed infestations, less disruption of pollinators, and no extra fertilization of special status plants' habitats by livestock under Alternative 5a. Thus, cumulative impacts to special status plants

under Alternative 5a would be less than those described under Alternative 4, because there would be no impacts from livestock grazing.

10. SPECIAL STATUS SPECIES (AQUATIC SPECIES)

Due to similar habitat requirements and spatial distribution, special status fish species are discussed under Section 7, Fisheries.

11. SPECIAL STATUS SPECIES (WILDLIFE)

Special status wildlife species in the Decision Area include mammals, birds, reptiles, amphibians, and an invertebrate that are federally or state listed, proposed, or candidates for such listing, or included on the BLM and USFWS sensitive/special status species list. See Table 3.33 in Chapter 3 for a complete listing of these species. Because many special status species have very narrow habitat requirements and low tolerance for change, even small modifications to their environment can lead to pronounced effects on individual animals or populations.

Special status species can be adversely affected from loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weed species, decreased water availability, increased habitat fragmentation, changes in habitat and species composition, disruption of species behavior leading to reduced reproductive fitness and/or increased susceptibility to predation, and direct mortality of individuals. Surface-disturbing actions that alter vegetation characteristics (e.g. structure, composition, and/or production) have the potential to affect habitat suitability for special status wildlife, particularly where the disturbance removes or reduces cover and/or food resources. Even minor changes to vegetation communities have the potential to affect special status species.

a. Indicators, Methods, and Assumptions

Special Status Species Indicators

Wildlife is dependent on the condition of habitat for survival. For the Decision Area, both rangeland and forest plant communities support habitats for special status wildlife species. Important indicators of wildlife habitat health include plant composition, distribution, and structure. Factors that were used to indicate effects on such components of wildlife habitats include the amount of surface disturbing activities, road density, amount of fragmentation, spatial scale, vegetation condition, designation of SMAs, and land use authorizations. The indicators used to determine impacts to special status wildlife species are presented in Table 4-6.

Table 4-6. Impact Analysis Criteria and Impacts Analyzed for Special Status Species		
Species	Key Impact Analysis Criteria	Impacts Analyzed
<i>Bureau Special Status Wildlife Species</i>		
Gray Wolf	Increased fragmentation within wolf habitat due to: <ul style="list-style-type: none"> • Landscape topography 	<ul style="list-style-type: none"> • Wildlife • Special Status Species

Table 4-6. Impact Analysis Criteria and Impacts Analyzed for Special Status Species		
Species	Key Impact Analysis Criteria	Impacts Analyzed
	<ul style="list-style-type: none"> • Road density • Human disturbance 	<ul style="list-style-type: none"> • Transportation
Washington Ground Squirrel	<ul style="list-style-type: none"> • Limited areas of occupation • Soil type 	<ul style="list-style-type: none"> • Soils • Vegetative Communities • Special Status Species • Livestock Grazing • Lands and Realty
Bald Eagle	<ul style="list-style-type: none"> • Unity Reservoir BEMA • Meeting breeding pair targets for RZ14 • Disturbance from Recreation within the Snake River Corridor 	<ul style="list-style-type: none"> • Special Status Species • Recreation • Lands and Realty • ACECs
Golden Eagle	<ul style="list-style-type: none"> • Wind energy development • Human disturbance 	<ul style="list-style-type: none"> • Special Status Species • Recreation • Lands and Realty • ACECs
Greater Sage-grouse	<ul style="list-style-type: none"> • Sagebrush canopy cover • Land-use Authorizations • Protection buffer widths • Identified key habitat • Proposed Virtue Flat ACEC 	<ul style="list-style-type: none"> • Water Resources • Vegetative Communities • Invasive Plants and Noxious Weeds • Wildlife • Special Status Species • Fire and Fuel Management • Livestock Grazing • Minerals • Recreation • Transportation • Lands and Realty • ACECs
Columbia Spotted Frog	<ul style="list-style-type: none"> • Habitat availability • Invasive outcompeting with resources • Stream health • Roads • Mining activity and direct impacts 	<ul style="list-style-type: none"> • Water Resources • Vegetative Communities • Noxious Animals, Plants, and Weeds • Special Status Species • Fires and Fuels Management • Livestock and Grazing • Minerals • Transportation
White-tailed Jackrabbit	<ul style="list-style-type: none"> • Sagebrush canopy cover • Juniper encroachment 	<ul style="list-style-type: none"> • Vegetative Communities • Special Status Species • Fire and Fuel Management • Livestock Grazing
Pygmy Rabbit	<ul style="list-style-type: none"> • Habitat fragmentation • Sagebrush canopy cover 	<ul style="list-style-type: none"> • Soils • Vegetative Communities • Wildlife • Fire and Fuel Management • Livestock Grazing
Lewis's Woodpecker	<ul style="list-style-type: none"> • Habitat availability • Old growth 	<ul style="list-style-type: none"> • Forestry and Woodland Products • Vegetative Communities

Table 4-6. Impact Analysis Criteria and Impacts Analyzed for Special Status Species		
Species	Key Impact Analysis Criteria	Impacts Analyzed
		<ul style="list-style-type: none"> • Fire and Fuels Management
White-headed Woodpecker	<ul style="list-style-type: none"> • Habitat availability • Old growth 	<ul style="list-style-type: none"> • Vegetative Communities • Wildlife • Fire and Fuels Management • Forestry and Woodland Products
Townsend's Big-eared Bat and Fringed Myotis	<ul style="list-style-type: none"> • Habitat fragmentation 	<ul style="list-style-type: none"> • Water Resources • Vegetation Communities • Wildlife • Fire and Fuels Management • Forestry and Wood Products • Livestock Grazing • Minerals • Lands and Realty • ACECs
Bureau Special Status Wildlife Species - Washington Only		
Western Burrowing Owl	<ul style="list-style-type: none"> • Habitat availability • Potential energy developments 	<ul style="list-style-type: none"> • Soil Resources • Vegetative Communities • Livestock Grazing • Lands and Realty
Ferruginous hawk	<ul style="list-style-type: none"> • Habitat fragmentation • Potential energy developments 	<ul style="list-style-type: none"> • Vegetative Communities • Wildlife • Special Status Species • Lands and Realty

Methods

To analyze the potential effects of the alternatives on special status species, information was compiled from existing inventories, recovery plans, conservation agreements, State Heritage database files, relevant scientific literature, computer habitat models, and other sources that identify the potential distribution of these species in and adjacent to the Decision Area. This analysis is also based on professional expertise of BLM specialists at the Baker FO, Vale District Office, and SO, and a review of the relevant scientific literature.

In determining impacts, the BLM interdisciplinary team considered how the effects of the action would affect listed or proposed species known or suspected to occur in an area. Direct and indirect impacts were considered together with impacts of activities that are interrelated or interdependent.

The effects analysis for special status wildlife species focused on those species that were identified as potentially occurring within the Decision Area (see Table 3.33 in Chapter 3). The primary impacts to special status wildlife species include: loss or alteration of native habitats, increased expansion of noxious weeds and other exotic weed species, decreased water availability, increased habitat fragmentation, changes in habitat, disturbances of habitat (anthropogenic and otherwise), species composition, and direct loss of individuals.

Desired future conditions for each special status wildlife species would continue to be developed as data become available. These desired future conditions would be patterned after those presented for greater sage-grouse and would be used as a tool to manage special status species wildlife within the Planning Area.

A regional map (Map 3.4) showing the extent of greater sage-grouse habitats in several western states, modified to incorporate localized-refined data that identifies key habitat used by sage-grouse within the Decision Area, was used in the analysis for sagebrush obligates.

Special Status Species Not Analyzed in this Section

A number of special status species are not analyzed in this chapter due to limited, marginal, transient, and/or migratory habitat within the Decision Area. For example, existing habitat for Canada lynx, American marten, California wolverine, fisher, and yellow-billed cuckoo is limited, marginal, and highly fragmented. Except for the California wolverine, no known occurrences of these species have been documented within the Decision Area, and the management actions considered in this Draft RMP/EIS would not impact their populations or survival. Similarly, habitat potential for harlequin duck, tricolored blackbird, upland sandpiper, and mountain quail is extremely limited and marginal and no known occurrences of these bird species have been documented within or adjacent to the Decision Area. While the Columbian sharp-tailed grouse was formerly found within the Decision Area, the only known occurrences currently within the Planning Area are not on public lands.

Assumptions

The following assumptions regarding special status wildlife species were made during the analysis:

- In most areas, occupied special status species habitat would be managed for the benefit of the species.
- All surface disturbing activities would include mitigation to reduce impacts to special status species and their habitats. Conservation measures developed for each listed and candidate species or BLM special status species would be applied to any proposed project within the habitat of that species as developed by state and federal agencies. Analysis of impacts and determinations of effects would include any applicable mitigation and conservation measures.
- Prior to any surface disturbing activity, a special status species review would occur to determine whether any such species is present in the project area.
- A biological assessment for consultation with USFWS would be prepared for any documented listed species or critical habitat within a project area.
- At this time, no listed wildlife species are documented to occur in the Decision Area; however, three candidate species for listing are known to occur in the Decision Area.

These include Washington ground squirrel, Columbia spotted frog, and greater sage-grouse.

Magnitude of Impacts to Special Status Wildlife

Impacts are quantified where possible. In absence of quantitative data, the best professional judgment based on scientific and other literature was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities or magnitude of impacts are also described, where possible, using the following guidance:

<i>Negligible</i>	The impacts on special status wildlife would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to individuals or the population as a whole.
<i>Minor</i>	The impacts on special status wildlife would be detectable but localized, small, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse effects, would be simple and successful.
<i>Moderate</i>	The impacts on special status wildlife would be readily detectable and localized, with potential consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and would probably be successful.
<i>Major</i>	The impacts on special status wildlife would be obvious and would result in substantial consequences to the populations in the region. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed. Actions that would likely result in effects of this severity to special status species would not be authorized or undertaken.

Temporal Scale

<i>Short-term:</i>	Anticipated effects occur within 0 to 5 years of project implementation.
<i>Moderate-term:</i>	Anticipated effects occur up to 14 years.
<i>Long-term:</i>	Anticipated effects occur for at least 15 years.

b. Impacts to Special Status Species (Wildlife)

Impacts to special status species would result from actions proposed under the following resource management programs. Not all resource management programs are addressed for each species. Table 4-6 shows the resource management programs analyzed for each species, as well as the key impact criteria analyzed.

- Water Resources
- Soil Resources
- Vegetative Communities
- Invasive Plants and Noxious Weeds

- Fire and Fuels Management
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Transportation
- Lands and realty
- ACECs

No Action Alternative

Impacts from Water Resources

Fringed Myotis and Townsend's Big-eared Bat

Protecting riparian habitat under the No Action Alternative by following PACFISH/INFISH recommendations would reduce the potential for over-utilization in areas where bats forage. Implementing protective measures within RMAs would retain native vegetation, natural hydrological regimes, and maintain water quality, which would aid in the retention of habitat of prey species and quality sources of open water for drinking. Water quality conditions and riparian vegetation health would continue to improve under the No Action Alternative, but at a slower rate compared with the action alternatives, which identify specific actions to restore and enhance riparian conditions. Overall, beneficial impacts under the No Action Alternative would be short-term, site-specific, and moderate.

Installation of riparian exclosures under the No Action Alternative could restrict aerial access by bats, resulting in long-term, localized, minor, adverse impacts.

Greater Sage-grouse

Excluding livestock grazing from identified stream segments, bogs, and spring overflows, where use was inconsistent with riparian management because they have not been evaluated for rangeland health standards, would benefit sage-grouse by reducing the potential of over utilization in stream reaches that are important for late-growing seasonal foraging (Crawford et al. 2004; Sveum et. al 1998; Fischer et al. 1996). On the other hand, the No Action Alternative does not propose management actions that would improve streambank stability and increase the vigor of riparian vegetation, which is important to sage-grouse during various life-cycle stages (Crawford et al. 2004). This Alternative would potentially lead to riparian areas that would not have enough vegetation to support forb ratios for growing chicks and/or hiding cover for brooding females because of decreased vigor and streambank instability. Adverse impacts on sage-grouse habitat would be long-term and range from minor to moderate.

Columbia Spotted Frog

The No Action Alternative would comply with EPA and ODEQ requirements, implement watershed management plans, and continue the cooperation with state and federal agencies to maintain and improve water quality, which would be favorable to spotted frog habitat and biologic needs. Management actions that improve water quality directly affect Columbia spotted frog habitat by establishing adequate water temperatures and reducing pollutants (Reylea 2005; Boyer and Grue 1995).

Excluding livestock grazing from identified stream segments, bogs, and spring overflows where use is inconsistent with riparian management would reduce frog mortality and habitat fragmentation associated with livestock grazing (see Impacts from Livestock Grazing below). On the other hand, allowing projects under the No Action Alternative that remove, move, and store water for other resource uses would reduce or destroy potential frog habitat in some areas, but potentially augment potential frog habitat in other areas, especially during drought years (Patla and Keinath 2005). Beneficial impacts would be long-term and minor to moderate.

Impacts from Soil Resources*Pygmy Rabbit*

The soils section of the current Baker RMP (BLM 1989) does not provide specific management actions for pygmy rabbit habitat; however, the goal is to maximize soil stability. Soil stability is important attribute for pygmy rabbits because they use soils as a part of their den structure. Maximizing soil stability would directly benefit pygmy rabbits because it would support their basic physiological need of adequate soil structure, which indirectly provides protection from predators.

However, biotic crusts are needed to maximize soil stability; especially in areas that have highly erodible soils. The No Action Alternative does not protect biotic crusts, and would thereby directly affect soil stabilization. Overall, the No Action Alternative would have long-term, moderate, adverse effects on pygmy rabbit habitat because its component of maximum soil stability would be reduced.

*Washington Ground Squirrel*Unoccupied Habitat

Allowing the permitted livestock operator to determine when grazing occurs in habitat unoccupied by Washington ground squirrels could degrade such habitat. If grazing occurs regularly during the wet season (early spring), biotic crust mats could be fragmented, resulting in increased soil erosion. Since the presence of biotic crust is an important variable in habitat selection for Washington ground squirrels (Greene et al. 2009), degradation of such crusts would result in long-term, adverse impacts that are moderate in magnitude.

Occupied Habitat

Continuing to exclude livestock grazing in habitat occupied by Washington ground squirrels under the No Action Alternative would aid in the continued development and maintenance of thick biotic crusts and a healthy native plant community. This, in turn, would be able to withstand non-native annual grasses that are detrimental to occupied Washington ground squirrel habitat (Betts 1990; Greene et al. 2009). Beneficial impacts to known populations of ground squirrels within the Decision Area would be major and long-term.

Western Burrowing Owl

Western burrowing owls are dependent upon soils as a part of their den and nesting structure, as well as for providing protection from predators. Managing soils under the No Action Alternative to maximize soil stability would thus directly benefit the species; however, the No Action Alternative provides no direction for protecting biotic crusts, which is needed to maximize soil stability on a watershed scale (Pozetti and McCune 2001). Overall, the lack of managing biotic crusts would have long-term, minor, adverse effects to Western burrowing owl habitats.

Impacts from Vegetative Communities

Pygmy Rabbit

Under the No Action Alternative, upland vegetation would be managed for a mid to late-seral class by implementing an ecological condition class that would correspond to 26 to 75 percent of the composition found in the potential natural plant community. This would benefit pygmy rabbit habitat by supporting adequate sagebrush canopy cover (BLM 1989). Beneficial impacts to pygmy rabbit habitat would be long-term and range from minor to moderate.

Townsend's Big-eared Bat and Fringed Myotis

Wyoming and Mountain Big Sagebrush Communities: Some degree of prescribed fire, mechanical treatment, or use of wildfire would be utilized in upland shrub/grassland vegetation communities under the No Action Alternative in order to maintain a mid- to late-seral condition. Short-term impacts would be adverse and negligible. In the long term, such management actions would limit the expansion of juniper woodlands and/or conifer trees into mountain shrub communities, which would maintain a landscape level of mosaic habitats and maintain edge habitat needed by foraging bats. These impacts would be beneficial and moderate.

Riparian and Wetland Communities: Under the No Action Alternative, maintaining riparian habitat by modifying grazing systems would improve or maintain herbaceous vegetation diversity and structure and have long-term, beneficial impacts to foraging bat species. Not having specific management strategy under the No Action Alternative to reduce the encroachment of juniper into riparian areas would continue to degrade riparian communities that support insect diversity and provide flight corridors for bat species, ultimately reducing suitable foraging habitat and connectivity between roosting and foraging areas.

Moist and Dry Forest Communities: Establishing and/or maintaining healthy and diverse forestlands in all age classes and stocking levels within at least 10 percent of the acreage in well distributed old-growth habitat would have beneficial, long-term impacts on bat roosting habitat. Outside the 10 percent of protected old growth forest, commercial harvesting of all stands containing some old growth components would be allowed under the No Action Alternative, with larger, older trees being targeted for harvesting. Impacts to roosting habitat for bats would be adverse, moderate, and long-term.

Non-Native Annual Grass Communities: The lack of management action under the No Action Alternative aimed at reducing the spread of non-native annual grass communities would increase the risk of wildfire, leading to an increase in annual grassland communities. This would reduce the needed cover, structure, and edge habitat required to support the community of insects and a mosaic of foraging habitat important to bat species, and increase fragmentation of habitat, which would lead to a loss of connectivity important for maintaining optimal foraging areas near roosting sites for bats. Adverse impacts would be long-term and moderate.

White-tailed Jackrabbit

Managing upland vegetation for a mid- to late-seral class under the No Action Alternative would implement an ecological condition class that would correspond to 26 to 75 percent of the composition found in the potential natural plant community. This would benefit white-tailed jackrabbit habitat by supporting adequate sagebrush canopy cover for nesting and hiding areas (BLM 1989).

By not providing management actions for juniper encroachment in mountain big sagebrush plant communities, the No Action Alternative would result in reduced habitat for white-tailed jackrabbits. Adverse impacts would be long-term and minor.

Washington Ground Squirrel

Unoccupied Habitat

The Washington ground squirrel habitat within the Decision Area is located within the custodial grazing Juniper Canyon allotments, consisting of 3,653 acres, where livestock season of use is not regulated. If the livestock operator decides to graze regularly during the critical growth season for native grass species, and such grazing occurs for more than 2 or 3 years in row, native grasses may be stressed to a point where non-native annual grasses could establish or spread, which would not be suitable for Washington ground squirrels. In addition, the species prefers areas that have high perennial grass cover and low bare ground (Greene et al. 2009). Grazing regularly during the critical growth stage would reduce perennial grass cover and increase bare ground, reducing Washington ground squirrel habitat quality, which may partially explain why the habitat is unoccupied. Overall, adverse impacts would be major and long-term.

Occupied Habitat

Continuing to exclude livestock grazing from the occupied habitat within the Decision Area would further promote a thick biotic crust, which could reduce the density of non-native annual grass and aid in the attainment of high grass cover and low bare ground, which is needed to meet the Washington ground squirrels habitat needs (Greene et al. 2009). Overall, the No Action Alternative would continue to have a major, long-term, beneficial impact on occupied Washington ground squirrel habitat.

Western Burrowing Owl

Although Western burrowing owls prefer early to mid-seral grasslands where vegetation is sparse and terrain is level, the species can inhabit a variety of seral classes (Rich 1986). As a result, managing upland vegetation for a mid to late-seral class under the No Action Alternative would have long-term, beneficial impacts on owl habitat.

Ferruginous Hawk

Under the No Action Alternative, managing upland vegetation for a mid to late-seral age class would provide open expanses of sagebrush that support adequate rodent populations, which would be conducive and beneficial to ferruginous hawk habitat (Schmutz 1995). On the other hand, ferruginous hawks are susceptible to habitat fragmentation, including encroachment from juniper and conifers (Schmutz 1995), management of which is not addressed under the No Action Alternative. Although juniper has been managed on public lands on a project-by-project basis that has helped to reduce further habitat fragmentation, such actions may not be sufficient to restore western juniper to historic levels. As a result, the lack of juniper management would have adverse, indirect, long-term impacts on ferruginous hawk habitat that would range from minor to moderate in magnitude.

Greater Sage-grouse

Due to the sage-grouse's reliance on Wyoming big sagebrush for most its biological needs, lacking an emphasis for restoring Wyoming big sagebrush under the No Action Alternative would allow for further degradation of sage-grouse habitat. Furthermore, not requiring reclamation of Wyoming big sagebrush loss could result in further reduction in suitable sage-grouse habitat which would have the potential of decreased sage-grouse populations within the Planning Area. Because sage-grouse within the Decision Area are located within the northern periphery of their range they are more sustainable to habitat disruption (Hagen 2005).

Managing upland vegetation for a mid to late-seral plant composition under the No Action Alternative would result in an overall canopy cover greater than 30 percent, which would be conducive to sage-grouse wintering habitat. On the other hand, since a canopy cover between 15 to 30 percent provides enough open space for forbs that are needed by growing chicks (Klebenow 1969; Drut et al. 1994), canopy cover over 31 percent would result in inadequate spacing for forbs (Klebenow 1969), and would thereby have adverse impacts on chicks.

Leaving between 40-60 percent of perennial grasses across rangelands under the No Action Alternative may or may not be adequate for sage-grouse habitat needs, including nesting sites (Drut et al. 1994), hiding cover, and food sources for growing chicks (Popham and Gutierrez 2003; DeLong et al. 1995; Gregg et al. 1994). Grass stubble heights would fluctuate yearly depending on winter and spring moisture, resulting in residual grasses that may or may not be adequate for nesting/hiding cover. Impacts from perennial grasses to nesting habitat are unknown.

In addition to Wyoming big sagebrush areas, sage-grouse also use riparian areas for brood rearing and during hot summer months (Fischer et al. 1996). The use of riparian habitat usually occurs after the desiccation of forbs in sagebrush uplands, but may occur earlier in drought years (Savage 1969, Oakleaf 1971, Danvir 2002). Riparian areas are particularly vulnerable in late summer when excessive grazing and browsing may damage shrubs, reduce the yield and availability of succulent herbs, and cause deterioration of riparian function over time (Klebenow 1985; Kovalchik and Elmore 1992). The No Action Alternative would help to restore or maintain riparian habitat through modification of grazing systems, which would indirectly benefit sage-grouse habitat by retaining some streamside vegetation (i.e., forbs and grasses).

This Alternative does not provide any specific management for controlling juniper encroachment and would further fragment and reduce sage-grouse habitat. Juniper encroachment has become an increasing management concern because juniper has decreased both available and historic habitat for sage-grouse (Crawford et al 2004). Overall, vegetation management under the No Action Alternative would be adverse and moderate within the Decision Area.

Lewis's Woodpecker

Maintaining late seral forest structure characteristics would support and benefit an important component of the woodpecker's lifecycle needs (Short 1982). Beneficial impacts would range from minor to moderate and be long-term. Impacts would not be as beneficial as under the action alternatives, due to a lack of species-specific management of ponderosa pine and riparian areas.

Columbia Spotted Frog

Restoring or maintaining riparian habitat through modification of grazing systems would indirectly benefit spotted frog habitat by leaving some streamside/side-channel vegetation. Not specifying a minimum stubble height would make it uncertain as to how much riparian vegetation would be retained. However, repeated stubble heights below 2 inches are ineffective as hiding cover for the frog (Howard and Munger 2003). The No Action Alternative would thus have the potential for long-term, minor to moderate, adverse impacts on the species habitat.

Impacts from Invasive Plants and Noxious Weeds*Greater Sage-grouse*

Under the No Action Alternative, the BLM would continue to cooperate with APHIS to control the periodic outbreaks of grasshoppers. APHIS would conduct site-specific environmental analyses to identify and evaluate impacts. The use of approved insecticides would require authorization by BLM. Both the negative and beneficial impacts of the use of an insecticide to sage-grouse habitat management would be short-term and minor. Historically, the actual use of insecticides has seldom occurred (three times in the past 35 years) and only a small percentage (less than 1 percent) of sage-grouse habitat was treated when it has occurred.

Columbia Spotted Frog

While the presence of aquatic and terrestrial noxious weeds has the potential to exclude amphibians by creating dense stands (Funk et al. 2005), spotted frogs are more likely to be affected from invasive animal species. For instance, the presence of non-native bullfrogs in Columbia spotted frog habitat, such as in the Grande Ronde Valley, can adversely affect spotted frog populations through competition and direct predation. The No Action Alternative provides no guidance on the management of invasive fauna, which can adversely affect Columbia spotted frog in varying degrees (Bull 2005). Adverse impact from the lack of such management would be long-term and moderate.

The methods used to control invasive weeds may or may not affect spotted frogs. In studies by Reylea (2005), eastern amphibians were stressed by pesticides, while a synthesis of the literature by Bautista (2005) indicated some herbicides had a slightly less sensitive or a similar effect on amphibians as on fish. The impacts from pesticide control methods of invasive plants under the No Action Alternative are thus not entirely known.

Impacts from Wildlife*Pygmy Rabbit*

Not managing specifically to minimize continued fragmentation and loss or deterioration of pygmy rabbit habitat under the No Action Alternative would result in long-term, moderate, adverse impacts to pygmy rabbit habitat.

Gray Wolf

The No Action Alternative would allow transplants of endemic wildlife into suitable habitats in cooperation with state wildlife agencies (i.e., ODFW and WDFW), including the reintroduction or augmentation of gray wolves. Although, no transplants or reintroductions have taken place within the Decision Area, wolves that were reintroduced into Idaho have been observed in the Decision Area. While it is anticipated that wolf populations would disperse across the Decision

Area from adjacent public lands, the potential for future reintroductions within the Decision Area would increase the possibility of retaining more gray wolf populations in the Decision Area. If wolf presence produces conflicts between livestock and wolf home-ranges, the BLM would consult with ODFW and USFWS and use mitigation measures set forth under the 2010 Oregon Wolf Conservation Management Plan.

The No Action Alternative lacks specific mitigation to protect large contiguous patches of sagebrush and conifers/hardwoods, which would lead to continued fragmentation and loss of wolf habitat. However, because the No Action Alternative would allow transplants of gray wolves in fragmented habitat, overall impacts to wolf populations would be minor, beneficial, and long-term.

Townsend's Big-eared Bat and Fringed Myotis

The No Action Alternative provides for the management of snags, which provide roosting habitat for bat species. In addition, actions aimed at increasing and enhancing aspen forest types would provide important forest edge habitat utilized by foraging bat species. Beneficial impacts would be long-term and minor in magnitude.

Ferruginous Hawk

While wildlife habitat requirements would be identified during preparation of resource activity plans under the No Action Alternative, raptor habitat would receive no specific management protection. This would allow for continued exposure of ferruginous hawk habitat to such stressors as juniper encroachment. While mature, isolated juniper located on rock out-crops are important for nesting ferruginous hawks, juniper that encroaches into otherwise open areas fragments the hawk's foraging areas. The indirect adverse impacts from the limited management would be long-term and range from minor to moderate.

Greater Sage-grouse

The No Action Alternative objectives for wildlife habitat management would be consistent with the 6840 Special Status Species Manual, which would maintain/improve habitat quality for greater sage-grouse in appropriate GUs that have potential habitat or support greater sage-grouse populations. These GU units include: Lookout Mountain, Burnt River, Keating, Pedro Mountain, Powder River Canyon, Pritchard Creek, and section of Oregon Trail, Unity Reservoir, and Baker County Misc. Such management would directly benefit sage-grouse habitat.

While the current Baker RMP (BLM 1989) stated that an HMP would be written for sage-grouse, no such document was prepared. In the place of an HMP, the BLM has adopted the Oregon State strategy for greater sage-grouse (Hagen 2005) for guidelines to maintain habitat on public lands. The ODFW is planning to update the Strategy in 2011. Along with the State strategy, the BLM also follows numerous IMs, policy (BLM 2004), and information bulletins for sage-grouse

management, which help maintain the species' habitat and genetic needs. Overall, beneficial impacts to the species would be long-term and moderate.

White-headed Woodpecker

While the No Action Alternative would benefit white-headed woodpecker habitat by maintaining snags for woodpeckers and other cavity-dependant wildlife, minimum snag diameter and snag ratios would not be set. Since the woodpecker requires nesting snags to be greater than 20 inches in diameter and 10 snags per acre to meet habitat needs (Wisdom et al. 2000), not enough snags per acre may be made available to support adequate white-headed woodpecker habitat under the No Action Alternative. Overall, long-term impacts would be adverse and range from minor to moderate.

Impacts from Special Status Species

Gray Wolf

Although the No Action Alternative provides no direction on managing wolf habitat, the BLM follows direction under the Oregon Wolf Conservation and Management Plan (ODFW 2010). In addition, current policy requires the Oregon Fish and Wildlife Commission to manage wolves on public lands (ODFW 2005). Overall, the No Action Alternative would have minor to moderate, beneficial, long-term impacts to wolf habitat.

White-tailed Jackrabbit

Managing white-tailed jackrabbits using guidance in BLM Special Status Species Manual 6840 would directly benefit white-tailed jackrabbit habitat. Beneficial impacts would be long-term and range from minor to moderate.

Washington Ground Squirrel

Managing Washington ground squirrels using guidance in BLM Special Status Species Manual 6840 would directly benefit white-tailed jackrabbit habitat. Beneficial impacts would be long-term and range from minor to moderate.

Ferruginous Hawk

Following objectives for wildlife habitat management that are consistent with the Wildlife 2000 plan (referenced in the current Baker RMP [BLM 1989]) would maintain/improve habitat quality for ferruginous hawks in appropriate GUs. Managing ferruginous hawks using guidance from BLM Special Status Species Manual 6840 would also directly benefit ferruginous hawk habitat. Such management would have direct beneficial effects to ferruginous hawk habitat.

While the No Action Alternative calls for the maintenance of active nesting platforms, many platforms have been removed because they were erected close to sage-grouse lek sites. Reduction in platforms across the Decision Area has not been determined to have a measurable effect on population numbers. Guidance for building additional ferruginous hawk platforms would be given under current BMPs, which would ensure that they would be built in appropriate locations. Overall, this alternative would have long-term, beneficial impacts that are moderate in magnitude.

Greater Sage-grouse

Managing consistently with the 6840 Special Status Species Manual would maintain/improve habitat quality for greater sage-grouse in appropriate GU that have potential habitat or support greater sage-grouse populations. These GU units include: Lookout Mountain, Burnt River, Keating, Pedro Mountain, Powder River Canyon, Pritchard Creek, and section of Oregon Trail, Unity Reservoir, and Baker County Misc. Such management would directly benefit sage-grouse habitat because the 6840 Special Status Manual gives guidance and direction on maintaining, improving, and/or enhancing their habitat.

While continuing to do inventories for sage-grouse in order to determine nesting, brood rearing, and wintering habitat areas under the No Action Alternative would help identify key habitat areas for conservation, not providing additional management for enhancing, maintaining, or restoring sage-grouse habitats would result overall in long-term, adverse, minor impacts to sage-grouse habitat.

Bald and Golden Eagles

Under the No Action Alternative, the BLM would continue to follow federal policy to mitigate any impacts to bald and golden eagle populations as stated under Bald & Golden Eagle Protection Act of 1940. Following federal laws and policy would directly benefit bald and golden eagles because they prohibit the direct “taking” of eagles. Although mandates and policies directly protect populations, the No Action Alternative lacks specific management for habitat. Therefore, habitat needs for bald and golden eagles (i.e., the protection of nesting, roosting, and foraging sites) would not be addressed under the No Action Alternative, with the exception of habitat found in the Unity Reservoir area.

The cooperative BEMP for Unity Reservoir Nesting Bald Eagles (USFS 1995) would continue to be implemented under the No Action Alternative, which would be beneficial for the bald eagles found in the Unity ACEC Bald Eagle Management Area (BEMA). This would also be indirectly beneficial for golden eagle habitat because of the protection of cliff ledges under the BEMA. While eagles outside of the BEMA would be protected by federal policies that require mitigating any impacts to bald eagle populations, and prohibit the direct “taking” of eagles, they would not receive such intense protection of nesting, roosting, and foraging sites from human disturbance as inside the BEMA. Adverse indirect impacts to bald and golden eagles and their habitat outside the BEMA would be long-term and minor.

Columbia Spotted Frog

The No Action Alternative provides no specific management actions for the Columbia spotted frog; however, it would continue to be managed under the 6840 Special Status Species Manual, which provides guidance for the conservation of the species and its habitat. Beneficial impacts would be direct, long-term, and range from minor to moderate.

Impacts from Fire and Fuels Management*Pygmy Rabbit*

Under the No Action Alternative, unplanned ignitions within Wyoming big sagebrush habitat would meet resource objectives and fire would be suppressed to conserve as much of the Wyoming sagebrush habitat as possible. Since conserving and protecting Wyoming big sagebrush habitats is vital for healthy pygmy rabbit populations, impacts to pygmy rabbit habitat under the No Action Alternative would be beneficial, long-term, and minor.

Townsend's Big-eared Bat and Fringed Myotis

Although the No Action Alternative does not present a range of acres or propose specific treatments, the management of hazardous fuel conditions under this alternative would have at least a minor, long-term, beneficial impact on bat species due to habitat protection.

Fire suppression on unplanned ignitions would be implemented on fires that threaten areas with special or unique resource values, which could preserve roosting habitat, maternity sites, hibernacula, and important foraging habitats for bats. Suppression activities that protect these important habitats would have a major, long-term, beneficial impact on bat species.

White-tailed Jackrabbit

Under the No Action Alternative, unplanned ignitions within mountain big sagebrush habitat would meet resource objectives such as nesting and hiding cover. Within mountain big sagebrush habitat, fire would be used as a tool to reduce juniper encroachment, control unwanted vegetation, and reintroduce a vegetative community to a typical fire regime. Since conserving and protecting mountain big sagebrush is a key for healthy rabbit populations, impacts would be beneficial, long-term, and minor to moderate.

Greater Sage-grouse

Although a mosaic of sagebrush is conducive to sage-grouse needs, burning within Wyoming big sagebrush decreases the amount of vegetation that supports insects, which adversely affects brood-rearing (Fischer et al. 1996a). Under the No Action Alternative, unplanned ignitions within Wyoming big sagebrush habitat would meet resource objectives and fire would be suppressed to conserve as much of the Wyoming sagebrush habitat as possible. Since

conserving and protecting sagebrush is vital for healthy greater sage-grouse populations, impacts to sage-grouse habitat under the No Action Alternative would be beneficial, long-term, and minor.

Lewis's Woodpecker

The No Action Alternative emphasizes the continued existence of dry-site old growth by promoting and restoring the historic fire cycle through prescribed burning and managing wildland fires to achieve resource objectives for that area. In addition, prescribed fire and both planned and unplanned ignitions would be used to meet other resource objectives. In some cases, pre-treatment prior to fire prescriptions would be needed to protect large ponderosa pine and cottonwood trees if the project area is overstocked. Such activities would protect Lewis's woodpecker habitat, resulting in beneficial, long-term impacts that would range from minor to moderate in magnitude.

White-headed Woodpecker

The No Action Alternative would emphasize the continued existence of dry site old growth by restoring the historic fire cycle through prescribed burning and managing wildland fires to achieve resource objectives. Prescribed fire would also be used to meet other resource objectives. Such activities would protect white-headed woodpecker habitat, resulting in beneficial, long-term impacts that would range from minor to moderate.

Columbia Spotted Frog

The No Action Alternative provides little direction for fuels management. Even though frogs are likely underground or in water during drier times of year when fires usually occur, fire effects frogs by making corridors between habitats unsuitable and decreasing moist microhabitat sites through the reduction of ground cover and litter (Pilliod et. al 2003; Patla and Kenaith 2005). Such adverse impacts would be short-term and range from minor to moderate.

On the other hand, fire management can indirectly affect frogs with fire retardants, which can contaminate wetlands/frog habitat, while bulldozed lines and roads can destroy and fragment frog habitat (Pilliod et. al 2003; Patla and Kenaith 2005). Columbia spotted frogs would be less exposed to such adverse impacts under the No Action Alternative when compared to the other action alternatives.

Impacts from Forest and Woodland Products

Townsend's Big-eared Bat and Fringed Myotis

Under the No Action Alternative, all but 10 percent of forested land base that would be maintained as old growth would be available to be intensively managed for sustained yield of timber products. In order to achieve the PSQ requirements of 2.4 MBF per year, the larger, older

trees would be selected for harvesting first. This would reduce the distribution and extent of existing and potential old growth stands and limit snag recruitment of the larger trees that are preferred roosting habitat for bat species. Adverse impacts to bat habitat would be long-term and moderate.

Lewis's Woodpecker

The No Action Alternative (i.e., management under the current Baker RMP [BLM 1989]) would allow for continued degradation of Lewis's woodpecker habitat by not managing specifically for mature cottonwood galleries and/or open park-like ponderosa pine stands. However, current management incorporates policy that would reduce impacts to habitat degradation, resulting in beneficial, long-term impacts ranging from minor to moderate.

White-headed Woodpecker

This alternative would prohibit continued degradation of white-headed woodpecker habitat by prohibiting the cutting of large-diameter ponderosa pines (over 23 inches in diameter) without the signing of an EIS. Beneficial impacts would be long-term and range from moderate in magnitude.

Impacts from Livestock grazing

Pygmy Rabbit

While one study found that pygmy rabbits avoided grazed areas because of the reduced amount and nutritional quality of perennial grasses (Thines et al. 2004), the potential for impacts to pygmy rabbits from livestock grazing are generally unknown. If pygmy rabbit populations were found within the Decision Area, the BLM would implement 6840 manual requirements to protect habitat. The No Action Alternative minimizes potential conflicts between livestock and pygmy rabbits by adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage. However, overall impacts to pygmy rabbit habitat remains unknown.

Townsend's Big-eared Bat and Fringed Myotis

Grazing activities that lead to degraded riparian areas, increased sediment loads, reduced water quality, and altered vegetation composition and structure can adversely impact bats by reducing available drinking water, adequate prey, and suitable bat foraging habitat. Such adverse impacts would be most intense in areas of livestock concentration such as salting, watering, and trailing areas. The continuation of current grazing practices under the No Action Alternative, which had lead to certain currently grazed pastures not meeting rangeland health standards, would allow for continued degradation of bat habitats. Adverse impacts would be long-term and moderate.

White-tailed Jackrabbit

Although impacts to white-tailed jackrabbits from livestock grazing are not well understood, it is believed that livestock are potential competitors with white-tailed jackrabbits. Limited research exists specifically for the interaction between white-tailed jackrabbits and livestock in terms of grazing strategies. One study has indicated white-tailed jackrabbits show no preference for different grazing treatments (Flinders and Hansen 1975).

Under the No Action Alternative, potential conflicts between livestock and white-tailed jackrabbits would be limited by adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage. Such management would have minor to moderate, long-term, beneficial impacts on white-tailed jackrabbit habitat.

Washington Ground Squirrel

Impacts would be the same as discussed above under Impacts from Soils Resources and Impacts from Vegetative Communities

Western Burrowing Owl

In friable soils, livestock trampling can be the primary cause for nest failure of western burrowing owls (Holmes et al. 2003). On the other hand, livestock use can physically open dense sagebrush stands, which benefits burrowing owl habitat (Holmes et al. 2003). In addition, Western burrowing owls have been known to line their nests with cow dung to attract insects and disguise their scent to predators like the badger (Green and Anthony 1989). Under the No Action Alternative, conflicts between livestock and burrowing owls could be minimized by adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage. Overall, impacts to western burrowing owl habitat would be beneficial, long-term, and range from minor to moderate.

Greater Sage-grouse

Although direct impacts to sage-grouse populations from livestock grazing are not well understood (Beck and Mitchell 2000), studies have shown that livestock can provide both negative and positive direct/indirect effects to sage-grouse habitat (Beck and Mitchell 2000; Braun et al. 1977; Gregg et al. 1994). Scientific and/or peer-reviewed data is available that shows the direct and indirect impacts between greater sage-grouse and livestock grazing are limited. Information regarding this topic has been experimental, hasn't been replicated, consists of gray literature, or reflects conclusions of thoughts without empirical data (Sadowski 2011). Within the Planning Area, it is reasonable to assume that at a site-specific scale there are potentially adverse impacts to individual birds by livestock. This is mainly caused from nest-trampling or flushing, which potentially may lead to abandonment (Sadowski 2011). However, greater sage-grouse data gathered between 1981 and 2010 on Hart Mountain National Wildlife Refuge suggests that sage-grouse populations fluctuate similarly in grazed and ungrazed settings

(Sadowski 2011). The finding on the Hart Mountain National Wildlife Refuge helps support the thought that on a mid-scale analysis level, sage-grouse populations fluctuate naturally regardless of livestock presence. As a result, it is assumed that on a mid-scale level livestock presence at the Baker and East Central Oregon subpopulations would not contribute to the listing of sage-grouse under the ESA. All alternatives would contribute to significant progress in meeting rangeland health standards. The No Action Alternative provides management that could minimize conflicts between livestock and sage-grouse by adjusting and/or restricting grazing in areas where livestock is found to cause damage to sage-grouse habitat. These management actions would be beneficial for sage-grouse habitat. Thus, arguments that any form of livestock use within the Planning Area in greater sage-grouse nesting habitat would contribute towards ESA listing is not supported (Sadowski 2011). Overall, beneficial impacts to sage-grouse habitat would be long-term and minor to moderate in magnitude.

Columbia Spotted Frog

Livestock grazing at some levels may be beneficial by creating openings in vegetation to facilitate basking, as well as creating habitat through the development of water impoundments (Funk et al. 2005). The No Action Alternative would help facilitate these needs by allowing grazing in riparian areas as long as it is consistent with other resource needs.

Livestock grazing can directly adversely affect spotted frogs through trampling of frogs (at all life stages), degrading wetland habitat, and collapsing overhanging banks important as summer and overwintering sites. In addition, heavy grazing can compact soil, thereby limiting frogs from burrowing, and lower the water table by down-cutting channels (Patla and Keinath 2005). Livestock grazing has also been known to be one of the major factors negatively affecting spotted frog spatial movement and distribution (Reaser 2000). The severity of these impacts depends on level of grazing and current frog population (Bull 2005; Patla and Keinath 2005). Since the greatest amount of grazing would occur under the No Action Alternative, such adverse impacts would be most intense and widespread when compared to the other alternatives. Overall, adverse impacts from livestock grazing on Columbia spotted frogs would be short-term and moderate.

Impacts from Minerals

Townsend's Big-eared Bat and Fringed Myotis

Increased or renewed mining may have effects on populations of bats. Contemporary open-pit mining operations are often located in historical mining districts. In situations where historical adits and shafts are carved away by the expansion of an open-pit mine, these habitats are lost permanently. In other areas adjacent to renewed mining, the disturbance to foraging and roosting areas and direct disturbance to bats can cause serious declines in populations, alter species composition, or cause an entire roost to be abandoned. In these types of situations, adverse impacts would be long-term and major. Adjustments in the location, type of extraction, and timing would limit adverse impacts to bats. In situations where minerals exploration is minor

and followed by reclamation and/or proper exclusionary procedures to close mine features or to install bat-friendly gates, bats would likely reoccupy the area. Adverse impacts in these situations would be short-term and range from minor to moderate.

Greater Sage-grouse

The development and production of leasable, locatable, and saleable minerals could cause long-term displacement of greater sage-grouse from historical use areas or destroy sage-grouse habitat. Sage-grouse would likely vacate most of the development areas, as well as some adjoining land, in order to avoid sustained human disturbances (Holloran 2005; Storch 2007). Adjustments in the location or timing of saleable mineral extraction sites would limit such adverse impacts. For example, if timing of mineral extraction were to be theoretically adjusted to take place when sage-grouse are using another area, it may limit the extent of disturbance to local populations by not adding to landscape disturbance. Rehabilitation of a mined site would also limit adverse impacts by restoring historic sage-grouse habitat (Connelly et al. 2000).

Impacts would generally be limited to the area where the desirable mineral is located. The development of sites within an intensively used sage-grouse area would impede the ability to follow ODFW management goals for promoting the conservation of greater sage-grouse and intact functioning sagebrush communities in Oregon (Hagen 2005). Adverse impacts in such situations would be long-term and moderate. Impacts in instances where there is only seasonal use, or when the mines are closed, would be short-term and minor to moderate in magnitude as some sage-grouse may reoccupy part of their former range following the cessation of development activities. The magnitude of impacts would depend on where the mining activity took place. For example, if mining activity took place in areas that are identified within BLM key habitat (e.g. Virtue Flat), this would have more of an impact than if mining was in areas with only low-density sage-grouse use (e.g. Hells Canyon/ Burnt River Canyon).

Columbia Spotted Frog

Mineral development and production could cause long-term displacement of Columbia spotted frogs due to habitat destruction, with frogs likely vacating areas being actively mined. Adjustments in the location or season of operation of saleable mineral extraction sites would minimize adverse impacts; however, adverse impacts would generally be unavoidable with any action that disrupts or fragments wetland habitat (Adams et al. 2009). In addition, mining tailings that lead to heavy metal pollution in waterways can be detrimental to frogs. For instance, delays in metamorphosis and predator response impairment in tadpoles have been attributed to sub-lethal doses of heavy metals (Adams et al. 2009). However, not all mining impacts would be negative. For instance, dredge or settling ponds associated with mining operations may produce suitable frog habitats (Bull 2005). This would likely reduce negative effects to Columbia spotted frog habitat. Overall, beneficial impacts would be long-term and minor.

Impacts from Recreation*Greater Sage-grouse*

Recreation objectives under the No Action Alternative would maintain or enhance opportunities for hunting, sightseeing, hiking, and day use, which would increase the likelihood of indirect harassment of sage-grouse by recreationists. Since nesting sage-grouse are known to choose an area with minimized disturbance (Wakkinen et al. 1992), repeated indirect harassment of sage-grouse may result in long-term displacement of those animals, thus weakening their populations. Repeated displacement of sage-grouse at certain seasons would force the sage-grouse to use key energy fat reserves and potentially change lekking areas (Ersch 2009). Such indirect, adverse impacts would be localized, moderate, and both short- and long-term.

Bald and Golden Eagles

Placing an emphasis on enhancing recreation opportunities under the No Action Alternative may not be congruent with bald eagle habitat needs because some high-use recreational areas overlap bald eagle habitat. Although other factors may influence nesting success (Mathisen 1968), human activity can adversely affect feeding behavior of eagles, such as by interfering with food gathering and possibly causing displacement of eagles on foraging sites (i.e., both bald and golden). During the non-breeding season, bald eagles congregate where food is abundant and often use communal night roosts near foraging sites, which are also sensitive to disturbance. In regards to nesting and rearing of young, recreational activities may affect fledgling success ratios (Stalmaster and Newman 1979). Therefore, bald and golden eagles could experience displacement under the No Action Alternative due to potential habitats overlapping within high-use recreation areas such as Hells Canyon, Unity Reservoir, Powder River, and Virtue Flat, resulting in direct, adverse impacts that would be long-term and moderate.

Impacts from Transportation*Gray Wolf*

Road density is a strong predictor of suitable wolf habitat (Thiel 1985). While wolves use roads opportunistically for movement in areas of low human disturbance, increased road density increases human disturbance, fragmentation, and habitat loss. In addition to adequate prey base, wolves require minimal human exposure to thrive (Peterson and Page 1988; Mech 1989; USFWS 1987). Since the No Action Alternative would result in the most acreages being accessible by motorized use and the greatest road density among the alternatives, it would be the least conducive to wolf habitat needs. Overall, adverse impacts to wolf habitat under the No Action Alternative would be long-term and moderate.

Greater Sage-grouse

Fragmentation of rangelands is a concern for sage-grouse management, with roads being one of the greatest contributing factors for fragmentation within public lands (Connelly et al. 2000; Crawford et al. 2004; Beck 2000). The No Action Alternative would allow for the continuation of habitat degradation because no management direction is given for decommissioning roads and most areas would be open to motorized use. Overall, adverse impacts would be moderate and long-term.

Columbia Spotted Frog

Columbia spotted frogs can be adversely affected by roads due to mortality from road construction and vehicle collisions, modification of animal behavior, alteration of the physical and chemical environments, spread of exotics, and increased use of areas by humans (Trombulak and Frissell 2000). Because the No Action Alternative provides no management direction for decommissioning roads and would have the most areas would be open to motorized use, it would be the least conducive to frog habitat among the alternatives. Overall, adverse impacts would be long-term and moderate.

Impacts from Lands and Realty*Townsend's Big-eared Bat and Fringed Myotis*

Under the No Action Alternative, wilderness areas and WSR river segments classified as wild would be designated as ROW exclusion areas, while WSAs, ACECs and WSR river segments classified as scenic and recreational would be designated as avoidance areas. All other BLM-administered land would be available for ROWs. Resources outside of exclusion or avoidance areas have a higher risk of being negatively impacted by actions associated with land use authorizations.

Potential land use activities related to ROW developments that impact bats and their habitats include increases in road construction, road density, and facility development. Such activities would lead to fragmented habitats, which would reduce connectivity between roosting and foraging habitat. Energy developments have the potential to cause stress and displacement (e.g. power lines, communication sites, shooting ranges, energy development). For example, wind turbines have the potential to impact bat populations due to high mortality rates from collision with turbine blades and physiological responses to changes in air pressure at the ends of turbine blades, which causes barotrauma. Under the No Action Alternative, depending on the type of land use being authorized and its location, adverse impacts could be long-term, widespread, and range from moderate to major. Mitigation could reduce the magnitude and duration of the impacts. In addition, impacts would be reduced or eliminated in avoidance and exclusion areas, although the least amount of land would be under such protections under the No Action Alternative when compared to the action alternatives.

Washington Ground Squirrel

In general, development (e.g. roads, turbines, and transmission power lines) in native sagebrush communities has the potential to convert and fragment Washington ground squirrel habitat. The conversion of rangelands into non-native annual grass communities would increase the potential for noxious weed establishment and decrease the amount of perennial grasses that are needed for squirrel habitat. In suitable ground squirrel habitat where such developments would occur, adverse impacts would be long-term and moderate.

Western Burrowing Owl

Under the No Action Alternative, all utility/transportation corridors identified by the Western Regional Corridor Study would be designated and occupied without further review. Corridor widths would vary depending on the number of parallel facilities. Some corridor widths may overlap western burrowing owl habitats, which may displace some owls. For all action alternatives, ROW applicants who want to develop public lands would be encouraged to locate new facilities (including communication sites) adjacent to existing facilities, which would minimize long-term impacts by not creating new areas of disturbance.

The No Action Alternative would make most public lands available for ROWs, which includes future wind energy developments. Wind developments that overlap burrowing owl habitats have the potential to cause direct long-term stress, displacement, and fragmentation to their area of use. Owls can potentially collide with wind turbines when they are placed within established owl habitat (Smallwood et al. 2007). Depending on the project placement, especially within established nesting sites, energy development may cause long-term, major to moderate, adverse impacts to burrowing owl habitat. Overall, the No Action Alternative would have moderate, long-term, adverse effects on burrowing owl habitat.

Ferruginous Hawk

Impacts from utility/transportation corridors identified by the Western Regional Corridor Study would be the same as identified above for western burrowing owls. Developments (e.g. power lines, communication sites, shooting ranges, and energy development) have the potential to cause stress and displacement. Impacts from lands available for ROWs would also be the same as identified above for western burrowing owls, although there are no studies documenting ferruginous hawks colliding with wind turbines. Energy development would cause negative impacts to ferruginous hawk habitat depending on project placement within established nesting sites and flyways.

Greater Sage-grouse

Impacts from utility/transportation corridors identified by the Western Regional Corridor Study would be the same as identified above for western burrowing owls. Developments (e.g. power lines, communication sites, shooting ranges, and energy development) have the potential to cause

stress and displacement. In terms of wind energy developments, large-scale modification of habitat associated with energy development may alter or displace habitat use and/or vital rates of sage-grouse (Walker et al. 2007). Furthermore, energy developments would reduce and fragment key habitat use areas. Although the magnitude of impacts from energy development on sage-grouse is not well understood, there is some evidence that sage-grouse avoid areas that have been developed for energy (Doherty et al. 2008). Overall, adverse impacts in habitat areas open for wind energy development would be moderate and long-term.

Bald and Golden Eagles

Existing corridors and ROWs would be maintained and possibly further developed under the No Action Alternative, while new ones could be established on previously undisturbed lands. Some of these existing and potential corridors are within bald and golden eagle habitat and may fragment areas used by eagles. Utility transmission lines can cause additional mortalities with lines that do not have bird diverters because of increased risk of arcing between lines (Boeker and Nickerson 1975; Harness 2001). Another example of fragmentation of eagle habitat (for both bald and golden eagles) would be developed wind energy areas (Walker et al. 2005). Wind energy developments have been shown to change behavior of foraging eagles to avoid wind farm development completely (Walker et al. 2005). According to Walker et al. (2005), eagle distribution decreased by three times in areas where wind energy development was placed. Direct impacts would, therefore, likely be adverse, long-term, and moderate.

Impacts from ACECs

Townsend's Big-eared Bat and Fringed Myotis

Since ACECs are designated to protect natural resource values by limiting allowable activities, their management would aid in the protection of bat roosting and foraging habitat. Beneficial impacts would be long-term and range from negligible to minor.

Bald and Golden Eagles

Under the No Action Alternative, the Unity Bald Eagle ACEC, consisting of 360 acres of public lands on the North Fork of Burnt River, would continue to be managed in accordance with the ESA and Pacific States BEMP (USFWS 1986). The management plan would also help protect cliff ledges that golden eagles would use. The continued management of the Unity Bald Eagle ACEC, in conjunction with USFS at Unity Reservoir (USFS 1985), would have beneficial, moderate, long-term effects for both bald eagle and golden eagle habitat throughout the life of the RMP because it implements additional acres of habitat protection.

Greater Sage-grouse

While some areas of greater sage-grouse habitat would be located in existing ACECs under the No Action Alternative, such areas are not sufficiently large enough to act as habitat buffers that

incorporate all their life-cycle needs (Doherty et al. 2008). For example, existing ACECs, like the Keating Riparian RNA/ACEC (Balm, Sawmill, and Cover Creek), only comprise a total of 2,243 acres, of which approximately one-third of the area would be areas that sage-grouse would occupy seasonally. This ACEC does not support habitat that would sustain all their life-cycle needs. Although an individual ACEC may not support sufficient habitat for all of sage-grouse needs, these areas provide additional management to enhance and/or protect sage-grouse habitat and, therefore, beneficial impacts from existing ACECs would be moderate and long-term.

Impacts Common to All Action Alternatives

Impacts from Special Status Species

Bald and Golden Eagles

Beneficial impacts from following federal policies to mitigate impacts to bald eagles, and implementing the bald eagle plan for Unity Reservoir would be the same as identified under the No Action Alternative. The action alternatives, however, include stricter management within the Unity ACEC BEMA aimed at protecting bald eagles compared to the No Action Alternative, thus increasing protection of bald eagles in the BEMA. The action alternatives would also provide additional protection measures for bald eagle and, indirectly, golden eagle habitat outside the BEMA, such as protecting all known perches and nest trees within the Decision Area and future potential nest and perch trees (i.e., mature and snags) along the Snake River reservoirs. Overall impacts would be beneficial, long-term, and moderate.

Impacts from Recreation

Bald and Golden Eagles

Under the action alternatives, recreational uses that are found to displace eagles from important foraging and roosting areas would be restricted, which would reduce adverse impacts identified under the No Action Alternative. Beneficial impacts to bald and golden eagle habitat would be long-term and moderate.

Impacts from Lands and Realty

Bald and Golden Eagles

Although utility/transportation corridors and local ROWs would be allowed within bald eagle habitat under the action alternatives, additional protection measures would be implemented prior to developing new projects or expanding existing ones. For example, land-use activities that may result in adverse disturbance to nesting eagles during occupancy periods would be avoided and/or mitigated. Furthermore, hydropower development would be restricted in order to protect wildlife resources. Golden eagles would also get further management direction under IM 2010-156 which emphasizes golden eagle protection and identifies steps that may be necessary within

the habitat of golden eagles. By avoiding and/or mitigating these developments, long-term, adverse impacts under the action alternatives would be reduced to minor, as this would also include other management actions that would be beneficial for bald and golden eagles (compared to moderate under the No Action Alternative).

Alternative 1

Impacts Same as under the No Action Alternative

- Impacts from Special Status Species to White-tailed Jackrabbit, and Ferruginous Hawk
- Impacts from Fire and Fuels to Pygmy Rabbit
- Impacts from Livestock Grazing to Washington Ground Squirrel
- Impacts from Minerals to Greater Sage-grouse

Impacts from Water Resources

Townsend's Big-eared Bat and Fringed Myotis

Restoration activities along 50 miles of streams over a 10-year period would disturb foraging bats, resulting in short-term, negligible to minor, adverse effects. In the long term, restoring riparian habitat would improve foraging habitat for bats by decreasing sediment input and increasing the quality of riparian vegetation, which would provide habitat to their prey species, as well as maintain or create quality sources of open water for drinking. Such long-term, beneficial impacts would be minor.

Greater Sage-grouse

Implementing WQRPs and BMPs, establishing stream buffers, removing roads within RMAs unneeded for resource management, and restoring 140 miles of streams not meeting rangeland health standards could disturb sage-grouse in the short-term. However, the results of such management actions would reduce fragmentation within important habitat corridors and improve sage-grouse late summer and brood-rearing habitats, potentially leading to more chicks reaching adulthood (Crawford et al. 2004; Sveum et al. 1998; Fischer et al. 1996). Long-term, beneficial impacts would range from minor to moderate.

Columbia Spotted Frog

Implementing WQRPs and BMPs, establishing stream buffers, removing roads within RMAs unneeded for resource management, and restoring 140 miles of streams not meeting rangeland health standards could disturb spotted frogs in the short term. In the long term, such actions would reduce sediment input and improve water quality, thus providing greater benefits to Columbia spotted frog habitat. Furthermore, managing water quality on a watershed level would increase the extent of such beneficial impacts, which would be long-term and moderate.

Impacts from Soil Resources*Pygmy Rabbit*

Biotic crusts maximize soil stability by promoting moisture retention and forming a thin layer of highly specialized communities of cyanobacteria, mosses, and lichens that catch and retain soil particles (Pozetti and McCune 2001). Since soil stability is important to pygmy rabbits for excavation purposes and den structure, Alternative 1 would result in direct beneficial impacts to pygmy rabbit habitat. Such impacts would be long-term and range from minor to moderate.

*Washington Ground Squirrel*Unoccupied Habitat

Managing for biotic crust under Alternative 1 would have long-term, minor to major, beneficial impacts on Washington ground squirrel unoccupied habitat, with the magnitude of impacts being dependent on the amount of biotic crust cover within the area. In general, if biotic crust cover is between 6-11 percent, effects to habitat quality would be negligible, whereas if biotic crusts are above 11 percent, effects to unoccupied habitat quality would be major (Greene et al. 2009). On average, long-term, beneficial impacts would range from minor to moderate.

Occupied Habitat

Impacts to occupied habitat would be the same as described under the No Action Alternative.

Western Burrowing Owl

Impacts would be the same as those described above for pygmy rabbits.

Impacts from Vegetative Communities*Pygmy Rabbit*

Managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function, and restoring Wyoming big sagebrush habitat at a ratio of 2:1 would help reduce fragmentation of pygmy rabbit habitat compared to the No Action Alternative. Overall, impacts to pygmy rabbit habitat would be beneficial, long-term, and moderate.

Townsend's Big-eared Bat and Fringed Myotis

Upland Sagebrush Habitat (Wyoming and Mountain Big Sagebrush Communities): Management actions such as livestock use restrictions, range improvement projects, and juniper reduction projects that would be used to maintain a landscape mosaic of sagebrush cover and grass and forb production would have moderate, long-term, beneficial impacts on bat species.

Riparian and Wetland Communities: Using aggressive restoration methods to improve riparian habitat conditions would result in a long-term, major, beneficial impact on bat species by both providing the vegetation structure and diversity that supports greater abundances of insect prey and by maintaining flight corridors that allow connectivity between foraging and roosting habitat.

Moist and Dry Forest Communities: Using an active management approach toward maintaining existing old-growth stands and restoring stands with some latent old growth structure into stands that could be classified as old growth would provide important edge habitat needed by foraging bats and would retain green trees of various sizes for snag recruitment for future roost sites. These management actions would result in long-term, moderate, beneficial impacts to bat species, especially species such as the fringed myotis that rely more on old growth forests for foraging. The removal of encroaching vegetation would provide clutter-free edges that are preferred foraging habitat for larger bat species such as the Townsends-big eared bat.

Non-Native Annual Grass Communities: Under Alternative 1, efforts made to restore non-native annual grasslands to native vegetation would have a moderate, long-term, beneficial impact on bat species.

White-tailed Jackrabbit

Under Alternative 1, management actions aimed at restoring mountain big sagebrush communities, including reducing the encroachment of juniper into such communities, would increase the amount of potential habitat for white-tailed jackrabbit. Overall, impacts would be beneficial, long-term, and moderate.

Washington Ground Squirrel

Unoccupied Habitat

Compared to the No Action Alternative, Alternative 1 would provide additional protection for squirrel habitat by setting utilization targets based in part on the needs of wildlife. Other changes in livestock grazing aimed at protecting soils, including biotic crusts, and maintaining a vigorous native sagebrush community, would improve unoccupied Washington ground squirrel habitat (Brewer et al. 2007). Beneficial impacts would be long-term and potentially major.

Occupied Habitat

Impacts to occupied habitat would be the same as described under the No Action Alternative.

Western Burrowing Owl

Since Western burrowing owls prefer a sagebrush cover class of up to 15 percent, managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function would benefit western burrowing owl habitat. Overall, impacts would be beneficial, long-term, and moderate.

Ferruginous Hawk

Managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function would create a more conducive hiding habitat for rodents, which would benefit ferruginous hawks.

Compared to the No Action Alternative, which provides little to no guidance for juniper control, reducing juniper at a rate of 500 to 2,000 acres per year in areas where juniper has encroached on neighboring rangelands and/or other conifer and hardwood forests would reduce fragmentation of ferruginous hawk habitat. Beneficial impacts would be long-term and moderate. Implementing BMPs to protect any ferruginous hawk nests or potential nest trees in the treated juniper stands would reduce the potential of adverse impacts.

Greater Sage-grouse

Managing Wyoming big sagebrush canopy cover under Alternative 1 with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function would offer greater protection of sage-grouse habitat and reduce fragmentation compared to the No Action Alternative. Basing perennial grass utilization by livestock on growth stages would ensure adequate sufficient understory grass coverage necessary for hiding, nesting, and brooding cover (see Crawford et al. 2004), which would indirectly contribute to higher nesting and survival success ratios. Alternative 1 would also ensure an average perennial grass understory height of seven inches (Sandberg's bluegrass and needle and thread grass would be the exception) in normal production years within sage-grouse nesting/brooding habitat, would be conducive to sage-grouse nesting needs by providing adequate screening and hiding cover for growing chicks (see Davies et al. 2009; France et al. 2008). Nesting and brooding habitat could potentially contain both riparian and upland areas. Reclaiming Wyoming big sagebrush at a ratio of 2:1 would further reduce habitat fragmentation within this community compared to the No Action Alternative, which has no reclamation ratio. Range-edge dynamics and anthropogenic fragmentation impact genetic diversity (Bush et al. 2010). Bush et al. (2010) has shown that declining sage-grouse within populations on the northern edge experience greater genetic loss than populations that are surrounded by other populations. Reducing fragmentation within sage-grouse core areas is especially important because the Decision Area is at the northern extent of their home range, which makes sage-grouse more vulnerable to change (see Map 3.10; Bush et al. 2010; Beck et al. 2003).

Fischer et al. (1996) has shown that setting riparian stubble height at 3-4 inches for stream banks that are dry, stable, and moderately vulnerable to livestock impacts, and 6-8 inches for those that are highly vulnerable to livestock impacts would ensure that there are adequate residual forbs and grasses left for brood-rearing. Reducing juniper woodlands to approximate historic acreages by a of 500 to 2,000 acres per year in areas where juniper has encroached on neighboring rangelands would be beneficial for greater sage-grouse habitat by reducing fragmentation and decreasing potential perches for predators within their home ranges.

Overall, beneficial impacts to sage-grouse habitat from restoring Wyoming big sagebrush for canopy cover, basing perennial utilization on plant growth stages, implementing greater riparian protection, and juniper reduction would be long-term and moderate.

Lewis's Woodpecker

Because the Lewis's woodpecker inhabits open old-growth ponderosa and cottonwoods, retaining late-seral stands to prescribed conditions (see USFS 1993) and actively managing encroaching conifers and woodland species within cottonwood stands would improve woodpecker habitat. Beneficial impacts would be long-term and moderate.

White-headed Woodpecker

Retaining late-seral stands to prescribed conditions (see USFS 1993) would promote a forest age structure important for white-headed woodpecker life history. Retaining the largest, healthiest, trees would help ensure adequate snags for future use. Beneficial impacts would be long-term and range from moderate to major within the portion of the Decision Area that supports white-headed woodpeckers.

Columbia Spotted Frog

Minimum riparian stubble heights in proposed under Alternative 1 would provide greater hiding cover for Columbia spotted frogs (Howard and Munger 2003). Introducing intensive riparian monitoring and modifying land uses to benefit Columbia spotted frog habitat would also contribute to improving frog habitat. Overall, beneficial impacts would be long-term and moderate.

Impacts from Invasive Plants and Noxious Weeds

Greater Sage-grouse

Compared to the No Action Alternative, Alternative 1 would more aggressively treat noxious weeds and other invasive species where they threaten the quality of sage-grouse habitat, and apply noxious weed BMPs to prevent infestations from occurring in order to maintain, protect, restore, and enhance sage-grouse habitat. Furthermore, sage-grouse requirements may determine/modify treatment actions taken for grasshopper outbreaks. Modifications could include where and when the application of chemical would be applied reducing the chance that the chemical can directly or indirectly affect sage-grouse within the immediate area. Overall, beneficial impacts to sage-grouse habitat would be long-term and minor.

Columbia Spotted Frog

Under Alternative 1, management actions pertaining to invasive aquatic and terrestrial animal species (other than plants) would stress their prevention, restriction, and control in cooperation with appropriate agencies, which would eliminate adverse impacts to frogs identified under the

No Action Alternative. More aggressive and directed treatment of noxious and invasive weeds would also benefit frogs. Overall, impacts under Alternative 1 from direct management of noxious weeds, plants, and animals would be beneficial, long-term, and moderate.

Impacts from Wildlife

Pygmy Rabbit

Emphasizing the protection of large contiguous patches of sagebrush habitat under Alternative 1 would decrease fragmentation and habitat degradation more than under the No Action Alternative, thus providing greater benefits to pygmy rabbits (Thines et al. 2004). Overall, beneficial impacts for potential pygmy rabbit habitat would be long-term and minor to moderate in magnitude.

Gray Wolf

The potential for relocation and translocation of wildlife species under Alternative 1, including wolves, would have negligible impacts since the species currently seems to be dispersing on their own from populations established in Idaho. Under Alternative 1, managing sagebrush habitats to meet rangeland health standards would help reduce fragmentation across the Decision Area. This would result in long-term, moderate, beneficial impacts on wolf habitat.

Townsend's Big-eared Bat and Fringed Myotis

Protecting cliffs, ledges, talus slopes, and unique habitats for wildlife under Alternative 1 would benefit bats by protecting important foraging and roosting habitat, as well as protecting potential maternity and hibernacula sites. In addition, management efforts aimed at maintaining or improving habitat connectivity, travel corridors, and riparian habitat complexity, diversity and structure would benefit bat species by providing adequate habitat for prey species, thus improving foraging habitat and providing corridors to roosting habitat. Retaining 30 percent canopy closure within forest treatments and providing guidance on minimum snag diameters and placement would protect existing foraging and roosting habitat and ensure future habitat components. Overall, impacts to bat species would be beneficial, long-term, and range from moderate to major.

Ferruginous Hawk

Placing more emphasis on maintaining, protecting, or restoring vegetative communities to improve wildlife habitat would benefit ferruginous hawk habitat. Addressing juniper encroachment through treatment efforts would reduce fragmentation of ferruginous hawk habitats, while retaining isolated mature growth in prescribed treatment areas would protect potential nest sites. Overall, such actions would reduce or eliminate the adverse impacts identified under the No Action Alternative, with overall impacts under Alternative 1 being beneficial, long-term, and moderate.

Greater Sage-grouse

Alternative 1 would offer greater protection for sage-grouse habitat compared to the No Action Alternative by decommissioning roads and trails and changing grazing management that does not meet sage-grouse habitat objectives (e.g. setting a stubble height in riparian areas). As discussed earlier, habitat fragmentation is a primary reason for limited sage-grouse habitat in the Decision Area. Alternative 1 sets management direction to potentially reduce habitat fragmentation by maintaining and/or restoring riparian habitat complexity, diversity, and structure by mitigating development within wildlife travel corridors, and by developing and implementing strategies to ensure that large contiguous patches of sagebrush are maintained or improved. These goals and management actions would increase habitat connectivity, which would have direct benefits to sage-grouse populations that could potentially result in viable populations on the northern periphery of its home range. Overall, beneficial impacts would be long-term and moderate.

White-headed Woodpecker

Alternative 1 would provide greater protection measures for white-headed woodpecker habitat compared to the No Action Alternative by setting minimum snag diameters, ratios, and placement specifications for snags. Adverse impacts identified under Alternative 1 would be reduced or eliminated since snag management under Alternative 1 would ensure sufficient snag diameters and placement for white-headed woodpeckers. Overall impacts under Alternative 1 would be long-term, beneficial, and moderate.

Impacts from Special Status Species*Gray Wolf*

In addition to other management plans that BLM uses for this species, this alternative would also use management under the 6840 manual, which would help protect habitat for special status species such as the wolf. Overall Alternative 1 would have minor to moderate, beneficial, long-term impacts to wolf habitat.

Washington Ground Squirrel

Alternative 1 would provide management direction for the remaining areas of suitable Washington squirrel habitat by following BMPs and maintaining and restoring degraded habitat using a variety of tools appropriate for site-specific areas. Impacts would be beneficial, long-term, and moderate.

Greater Sage-grouse

When compared to the No Action Alternative, Alternative 1 provides greater management actions that would benefit sage-grouse populations and habitat by reducing habitat fragmentation and increasing connectivity. One way this would be accomplished is by retaining 70 percent or

more of sagebrush habitat, with an emphasis on advanced structural stages that would provide adequate nesting and winter cover for sage-grouse (Crawford et al. 2004). Designating 3-mile avoidance buffers around occupied/unoccupied sage-grouse lek sites would protect 80 percent of existing occupied/unoccupied leks and help to provide contiguous secure sage-grouse breeding habitat with minimal disturbance and harassment (ODFW 2009). Maintaining a canopy cover structural class of 3, 4, or 5 (see appendix 2.4 for description of classes) and a setting utilization of perennial grasses at 21-40 percent within occupied nesting and brooding habitat would provide adequate hiding cover for nests and chicks (Holloran et al. 2005; Moynahan et al. 2007). Controlling juniper would reduce fragmentation and enhance connectivity (Crawford et al. 2004). Tailoring fire management to maximize benefit to sage-grouse habitat and giving fire suppression high priority in known sage-grouse habitat would reduce the spread of noxious weeds and the conversion of Wyoming big sagebrush into rabbitbrush, thus reducing further habitat fragmentation (Connelly et al. 2000; Baker 2006). This can be accomplished by, but is not limited to, maintaining large continuous sagebrush patches, suppressing fire with as little impact possible within sage-grouse habitat, involving wildlife biologists when a fire outbreak occurs, and only using direct attacks when effective (ODFW 2005). Overall, impacts under Alternative 1 would be beneficial, long-term, and moderate.

Columbia Spotted Frog

Impacts from Manual 6840 protection measures would be the same as identified under the No Action Alternative. Alternative 1, however, would offer additional protection to spotted frogs by implementing additional BMPs aimed at benefitting frog habitat. Management actions that would directly benefit frog habitat include constructing or adapting any existing or newly created perennial ponds to provide breeding habitat, replacing mining ponds that are reclaimed, and placing tree height buffers that prohibit ground disturbance in areas with breeding pools or other habitats for Columbia spotted frogs. Such BMPs would greatly increase benefits to Columbia spotted frog habitat when compared to the No Action Alternative. Overall, beneficial impacts under Alternative 1 would be long-term and range from moderate to major.

Impacts from Fire and Fuels Management

Greater Sage-grouse

Impacts from protecting sagebrush habitat from fire would be similar to those described under the No Action Alternative Action, although beneficial impacts would be more intense as additional measures would be taken to protect sage-grouse habitat. This includes giving higher priority in restoration within nesting, brooding, and lekking habitats, determining if treatment is necessary to recover ecological process, and to achieve habitat objectives for wildfires burning more than 10 acres of sage-grouse habitat. Such actions would provide additional management and protection for Wyoming big sagebrush canopy cover for sage-grouse habitat needs. Overall, beneficial impacts would be long-term and moderate.

Columbia Spotted Frog

Using Resource Advisors and MIST procedures under Alternative 1 would limit the indirect negative impacts described under the No Action Alternative. Furthermore, using fire as a management tool to create a more natural fire regime would reduce the potential for catastrophic fires. Implementation of projects using BMPs and avoidance of frog habitat would further reduce adverse impacts to frogs. Overall, this alternative would have moderate, beneficial, long-term impacts to Columbia spotted frog habitat.

Townsend's Big-eared Bat and Fringed Myotis

Management actions proposed under Alternative 1 aimed at reducing undesirable wildfire effects and meeting vegetation management objectives would improve forest stand vigor and understory diversity; reduce the encroachment of juniper; promote the recruitment of native grasses, forbs and shrubs; deter soil erosion; and restore or improve hydrologic function. This, in turn, would improve or maintain herbaceous vegetation diversity and structure needed by foraging bat species. Beneficial impacts would be long-term and moderate.

White-tailed Jackrabbit

Alternative 1 would use fire as a management tool to restore sagebrush communities, including reducing juniper encroachment in mountain big sagebrush communities. Burned areas would provide short-term benefits to jackrabbits by stimulating new plant growth for an increase in forage. In the long term, white-tailed jackrabbit habitat would experience moderate improvements.

Lewis's Woodpecker

Re-establishing the fire cycle in dry-site old growth ponderosa pine under Alternative 1 would result in perpetuating healthy old growth open stands. Impacts to Lewis's woodpecker habitat would be beneficial, long-term, and moderate.

White-headed Woodpecker

Impacts would be similar to those described above for Lewis's woodpecker.

Impacts from Forest and Woodland Products*Townsend's Big-eared Bat and Fringed Myotis*

Since a mosaic forest structure of second growth and mature stands mimics natural conditions and creates preferred habitat for bats (Luce et al. 2007), managing forests and non-juniper woodlands under Alternative 1 to sustain or restore their health and long-term productivity would benefit bats. Actions such as conducting small patch cuts to create openings for wildlife,

retaining snags for wildlife use, and retaining adequate green trees for future snags would directly benefit bats by creating foraging habitats and providing roost structures. Overall, beneficial impacts would be long-term and moderate.

Lewis's Woodpecker

Managing for fire tolerant species (e.g., ponderosa pine) within warm/dry forests under Alternative 1 would maintain adequate canopy and open forest floor vegetation for Lewis's woodpecker habitat needs. Furthermore, thinning ponderosa pine to appropriate stocking levels would achieve an open park-like forest structure, which is an important feature for Lewis's woodpecker habitat. The beneficial, long-term impacts to Lewis's woodpecker habitat would be moderate in magnitude.

White-headed Woodpecker

Managing for fire tolerant species (e.g., ponderosa pine) within warm/dry forests under Alternative 1 would promote healthy habitat conditions for white-headed woodpeckers by sustaining large-diameter trees for feeding and nesting/roosting purposes. Impacts would be beneficial, long-term, and moderate.

Impacts from Livestock grazing

Pygmy Rabbit

Compared to the No Action Alternative, pygmy rabbit habitat would receive greater protection under Alternative 1 due to following Rangeland Standards and Guidelines (BLM 1997), which includes the requirement to assess the habitat health of threatened, endangered, candidate, bureau sensitive, special status, and locally important species. Although there are currently no known populations of pygmy rabbits in the Decision Area, if populations were found and livestock use was degrading rabbit habitat, changes in livestock use would be implemented to protect pygmy rabbit habitat. Alternative 1 would provide additional management for livestock that would be beneficial for pygmy rabbits. Setting a minimum stubble height for grasses would also be beneficial for pygmy rabbits, as it helps provide screening cover for pygmy rabbits to hide. Beneficial impacts from this resource would be moderate and long-term.

Townsend's Big-eared Bat and Fringed Myotis

Impacts under Alternative 1 would be greatly reduced compared to the No Action Alternative due to a reduction in acres authorized for grazing and numbers of AUMs as well as increases monitoring and evaluations. In addition, necessary changes or adjustments to grazing systems would occur at a much faster rate than the No Action Alternative, which would help to reduce the risk of long-term, adverse impacts. Overall, livestock grazing management under Alternative 1 would reduce or eliminate adverse impacts to bat habitat as identified under the No Action Alternative. Impacts from would be beneficial, long-term, and moderate.

White-tailed Jackrabbit

Impacts would be similar to those described above for pygmy rabbits.

Western Burrowing Owl

Compared to the No Action Alternative, western burrowing owl habitat would receive greater protection under Alternative 1, as it follows Rangeland Standards and Guides (BLM 1997), which includes the requirement to assess the habitat health of threatened, endangered, candidate, other special status, and locally important species, and provides additional management actions that would be beneficial to burrowing owl habitat. If livestock use were found to degrade owl habitat, changes in livestock use would be required to mitigate such adverse impacts. Adverse impacts from this resource would be minor and long-term.

Greater Sage-grouse

Compared to the No Action Alternative, greater sage-grouse habitat would receive greater protection under Alternative 1, as it follows Rangeland Standards and Guides (BLM 1997), which includes the requirement to assess the habitat health of threatened, endangered, candidate, bureau sensitive, and locally important species. If rangeland health standards are not met, a grazing system would be designed that would meet utilization requirements during sage-grouse nesting and brooding seasons, which may include livestock being removed from the allotment if standards were repeatedly not met (please refer to the livestock section for further details regarding livestock removal). Overall, beneficial impacts to sage-grouse habitat would be long-term and moderate.

Columbia Spotted Frog

Using utilization targets based on rangeland health standards under Alternative 1 would support riparian health, and thus benefit frog habitat. Customizing AMPs in allotments where frogs are known to occur would reduce or eliminate the negative livestock impacts on Columbia spotted frogs identified under the No Action Alternative. This would reduce short-term, adverse impacts to minor, compared to moderate, adverse impacts under the No Action Alternative.

Impacts from Minerals*Columbia Spotted Frog*

Under Alternative 1, requiring surveys for special status species prior to all proposed mineral projects and, if special status species were found, stopping or altering such activities to accommodate survey findings and BMP mitigations would reduce adverse impacts to frogs and their habitat. Following mitigation measures to clean up prior abandoned mining operations would further minimize habitat degradation. Such actions would reduce long-term, adverse

impacts from future mineral exploration and extraction activities to minor, compared to moderate, adverse impacts under the No Action Alternative.

Impacts from Recreation

Greater Sage-grouse

Alternative 1 would increase recreational amenities, while reducing recreation-related impacts to other resources. Considering other resources, such as sage-grouse habitat, and modifying recreational uses where it is inconsistent with other resources, would reduce the amount of harassment sage-grouse receive within their habitat compared to the No Action Alternative. For example, motorized use would be restricted to designated roads and trails and seasonal restrictions on public access would be applied during sage-grouse lekking season (from mid March to end of May). Overall, beneficial impacts be decreasing recreational conflicts to sage-grouse habitat would be widespread, moderate, and long-term for sage-grouse throughout the Planning Area.

Although Alternative 1 would increase recreational amenities, it would also modify recreational uses where they are inconsistent with other resources, including sage-grouse habitat. This includes restricting motorized use to designated roads and trails and applying seasonal restrictions to public access during sage-grouse lekking season. Compared to the No Action Alternative, this would reduce recreation-related impacts to sage-grouse within their habitat, such as harassment from recreationists. Overall, beneficial impacts to sage-grouse habitat would be widespread, moderate, and long-term.

Bald and Golden Eagles

Under Alternative 1, recreational uses that displace eagles from important foraging and roosting areas would be mitigated, which would minimize the likelihood that recreation use would negatively affect both bald and golden eagle habitat use. Mitigations may include creating seasonal closures on roads and/or timing in recreational activity areas in areas where there is a high concentration of bald/golden eagles, such as Hells Canyon. According to Stalmaster and Kaiser (1998), effective management mitigations would include creating a buffer zone of 400 meters (~1,200 feet) from the waterline, which would protect 95 percent of ground-feeding eagles from recreationists and be especially effective in the months of December-February. Creating seasonal closures in overlapping eagle areas would help to mitigate disturbances since Hells Canyon has one of the highest eagle concentrations identified under the No Action Alternative, resulting in overall beneficial, long-term, moderate, impacts to bald eagle habitat.

Impacts from Transportation*Gray Wolf*

Reducing road densities under Alternative 1, which includes decommissioning roads, and leaving only 1 percent of the Decision Area open to motorized use would reduce potential human harassment of wolves, habitat fragmentation, and habitat loss. Such direct benefits to habitat would be long-term and range from moderate to minor.

Greater Sage-grouse

Reducing road densities under Alternative 1, which includes decommissioning roads, and leaving only 1 percent of the Decision Area open to motorized use would reduce harassment, reduce habitat fragmentation, improved degraded habitats, and increase habitat connectivity. Beneficial impacts to sage-grouse habitat would be long-term and moderate.

Columbia Spotted Frog

Providing direction for road decommissioning projects in riparian areas and avoiding the construction of new roads in riparian areas would help protect frog habitat. Overall, long-term, adverse impacts to frogs would be reduced to minor, compared to moderate, adverse impacts identified under the No Action Alternative.

Impacts from Lands and Realty*Townsend's Big-eared Bat and Fringed Myotis*

Under Alternative 1, excluding most surface disturbing activities on 71,052 acres and reducing ground-disturbing activities on 42,901 acres would reduce potential adverse impacts to bat species and their habitat. Such actions would maintain larger areas of intact habitat, providing connectivity between roosts and foraging sites, than under the No Action Alternative. Protection measures would also need to be considered in avoidance and exclusion areas under Alternative 1 in order to avoid or mitigate impacts to bat species and their habitat. Overall, impacts under Alternative 1 would be beneficial, long-term, and range from minor to moderate.

Washington Ground Squirrel

Under Alternative 1, having the objective to meet the public's need for use authorizations while staying consistent with other resource objectives would provide the opportunity to protect or mitigate impacts to Washington ground squirrels. This would minimize the likelihood of converting squirrel habitat into non-native annual grass communities. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Western Burrowing Owl

Setting practical limitations for ROW corridors and using existing disturbance areas where possible would minimize the area of ground disturbance, thus minimizing long-term impacts to burrowing owl habitat. In addition, exclusion areas set aside for energy development under Alternative 1 would overlap some Western burrowing owl habitat areas, which would protect important den and nesting areas, reduce habitat fragmentation, and diminish the potential for direct collision with turbines. Overall, beneficial impacts would be long-term and moderate.

Ferruginous Hawk

Compared to the No Action Alternative, setting practical limitations for ROW corridors under Alternative 1 would reduce the extent of long-term impacts because only the areas needed for completion of a project would be disturbed. Exclusion areas set aside for energy development would overlap some ferruginous hawk habitat areas, which would directly affect hawk habitat by protecting important nesting and foraging areas and reducing fragmentation, as well as decrease direct collision with wind turbines or other energy projects (Smallwood et al. 2006). Beneficial impacts under Alternative 1 would be long-term, beneficial, and moderate.

Greater Sage-grouse

To better protect habitat for sage-grouse, buffers around known sage-grouse leks have been created. The BLM has determined through analysis that there are 172,779 acres of sage-grouse habitat within the DA. Alternative 1 provides minimum buffers around all sage-grouse leks as identified under IM OR-2009-038 (i.e., 3 miles for wind energy developments, 0.5 miles for ground-level structures such as roads and buried power lines, and 2-mile radius for met towers and above ground transmission power lines or out of line-of-sight). This would protect 80 percent of sage-grouse leks within the Decision Area. ODFW (2009) has indicated that 80 percent of sage-grouse habitat is enough to sustain a population if those populations within that habitat are considered viable. In addition to 3 mile sage-grouse buffers, this alternative would exclude all land-use authorizations (including wind energy) from the proposed Virtue Flat ACEC, which contains 42,022 acres of sage-grouse habitat, would preclude approximately 24 percent of identified key sage-grouse habitat in the Decision Area from new ROW development. Placing a 3-mile avoidance area buffer around all lek sites outside of Virtue Flat ACEC, Oregon Trail ACEC, and portions of the Powder River WSR would protect 77,329 acres or 44 percent of sage-grouse habitat known within the Decision Area.

Because sage-grouse populations in the Decision Area are considered a part of the northern periphery of the range for the species, they are more susceptible to changes in habitat and impacts from development due to range-edge dynamics and anthropogenic fragmentation impact patterns of genetic diversity (ODFW 2005; Bush et al. 2010). The buffers proposed under Alternative 1 may not be adequate to protect nesting and other important life history components, such as winter and brood rearing areas. Studies have shown that sage-grouse avoid energy development in wintering areas and a comprehensive strategy is needed to maintain

suitable habitats in all seasons (Doherty et al. 2008). Few studies have analyzed impacts of wind energy developments on sage-grouse. Studies on oil- and gas-field developments within the range of the sage-grouse have shown that such developments cause measurable effects to sage-grouse populations (Becker et al. 2009). One study suggests sage-grouse habitat use declines when birds behaviorally avoid infrastructure in one or more seasons. Thus, sage-grouse may avoid the turbine structure of wind energy developments due to their vertical components that seem to fragment their habitat. Ultimately, infrastructure avoidance can shrink the distribution of sage-grouse and may result in population declines due to density-dependence, competition, or displacement into poor-quality habitats lowers survival or reproduction among displaced birds (Becker et al. 2009). Compared to the No Action Alternative, where no areas are specifically excluded, exclusion areas proposed under Alternative 1 would aid in protecting habitat connectivity and maintain a native plant community for sage-grouse habitat.

As mentioned above, 80 percent of sage-grouse habitat within the Decision Area would be protected under Alternative 1. The ODFW uses the ODFW 2009 Wildlife Habitat Mitigation Policy for sage-grouse to provide rational and directed habitat management. There is evidence in the "white paper" that suggests that protecting 80 percent of habitat around leks (3 miles in Oregon) may be enough to conserve sage-grouse populations if the population is healthy and viable. However, small isolated populations, such as the one in Baker County, may need greater buffers to ensure adequate protection (Hagen personal communication 2009).

The USFWS (2010a) has concerns regarding activities that occur within and outside of the 3-mile areas, stating that:

[H]omogenous application of the 3-mile buffer circles may not be precise in targeting the most important habitat for protection throughout the sage-grouse range in Oregon... [S]ite-specific evaluations should be made whenever possible to site projects away from good habitat, including habitat that may be outside the 3-mile zone... [P]olicy reflected in the [ODFW 2009] white paper should be viewed as interim because scientific information about the effects of energy development on sage-grouse is currently very limited... (USFWS 2010a)

Maintaining extensive stands of sagebrush habitat over large areas are required for sage-grouse breeding populations to persist (Walker 2007). Efforts to conduct an analysis to see if the populations within Baker County and gathering information that would help determine buffer needs for the conservation of breeding/nesting/brooding habitat are ongoing.

Development would have negative impacts to sage-grouse habitat because it would further fragment habitat that is within the Decision Area (Connelly et al. 2000). The Decision Area has limited areas that are suitable for sage-grouse habitat, which makes these existing areas important for sage-grouse habitat conservation. Although this Alternative 1 excludes all land use authorizations within the proposed Virtue Flat ACEC and Oregon Trail ACEC, the 3-mile buffer outside of these areas may not be adequate to sustain sage-grouse populations within the

Planning Area. However, Alternative 1 provides more protection measures from all land use authorizations (including wind energy development) than the No Action Alternative. Overall, this alternative would have long-term, minor to moderate, beneficial impacts for sage-grouse habitat.

Impacts from ACECs

Greater Sage-grouse

Designating the Virtue Flat ACEC would exclude all land-use authorizations from 41,823 acres of key sage-grouse habitat, which would protect 80 percent of sage-grouse habitat in the Decision Area, reduce habit fragmentation, and increase habitat connectivity. Along with summer, spring, and fall habitat, the proposed Virtue Flat ACEC encompasses some wintering habitat for sage-grouse, which is becoming increasingly important for sage-grouse habitat. The ACEC would help provide adequate habitat for all life history and cycles because federal and state agencies have found that it is a large enough area for sage-grouse to carry out all of their life-cycles. Overall, beneficial impacts to sage-grouse habitat would be long-term and moderate.

Townsend's Big-eared Bat and Fringed Myotis

Impacts would be similar to those identified under the No Action Alternative, except that they would be more extensive as four new ACECs would be designated under Alternative 1, which would more than double the acreage under ACEC protection. Beneficial impacts would be long-term and moderate.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Special Status Species to White-tailed Jackrabbit and Ferruginous Hawk
- Impacts from Minerals to Greater Sage-grouse, Townsend's Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to Washington Ground Squirrel
- Impacts from Recreation to Washington Ground Squirrel
- Impacts from ACECs to Greater Sage-grouse

Impacts Same as Under Alternative 1

- Impacts from Soil Resources to Pygmy Rabbit and Western Burrowing Owl
- Impacts from Vegetative Communities to Lewis's Woodpecker and White-headed Woodpecker
- Impacts from Invasive Plants and Noxious Weeds to Great Sage-grouse and Columbia spotted frog
- Impacts from Wildlife to Gray Wolf and Pygmy Rabbit

- Impacts from Special Status Species to Gray Wolf, Washington Ground Squirrel, Bald and Golden Eagles, Columbia Spotted Frog, and White-headed Woodpecker
- Impacts from Fire and Fuels Management to Columbia Spotted Frog, White-tailed Jackrabbit, Pygmy Rabbit, Lewis's Woodpecker, White-headed Woodpecker, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to Greater Sage-grouse, Columbia Spotted Frog, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Minerals to Columbia Spotted Frog
- Impacts from Recreation to Bald and Golden Eagles
- Impacts from Lands and Realty to Bald and Golden Eagles
- Impacts from ACECs to Bald and Golden Eagles
- Impacts from Wildlife to Townsends Big-eared Bat and Fringed Myotis
- Impacts from Recreation to Greater Sage-grouse

Impacts from Water Resources

Townsends Big-eared Bat and Fringed Myotis

Impacts would be similar to those described under Alternative 1, although less widespread due to fewer miles of stream restoration that would occur every ten years.

Greater Sage-grouse

Impacts would be similar to those described in Alternative 1, but the benefits to sage-grouse habitat would be less widespread due to less extensive stream restoration (30 fewer miles of stream restoration) and less emphasis would be placed on reducing road densities within the RMAs. The latter would result in more roads remaining in the RMAs, which equates to about three times more fragmentation and disturbance to sage-grouse habitat. As a result, the adverse, long-term effects to sage-grouse habitat would be minor to moderate.

Columbia Spotted Frog

Impacts would be similar to those described in Alternative 1, but the benefits to spotted frog habitat would be less widespread due to less extensive stream restoration and less emphasis would be placed on reducing road densities within the RMAs. The latter would result in more roads remaining in the RCAs, which equates to more sediment inputs into streams and less benefits to spotted frog habitat. As a result, the adverse, long-term effects to Columbia spotted frog habitat would be moderate.

Impacts from Soil Resources*Washington Ground Squirrel*Unoccupied Habitat

Impacts would be similar to Alternative 1, with the exception that setting utilization targets at 50 percent would reduce beneficial impact to biotic crust cover. This would reduce beneficial impacts to a range of negligible to moderate.

Occupied Habitat

Impacts to occupied habitat would be the same as described under the No Action Alternative.

Impacts from Vegetative Communities*Pygmy Rabbit*

Impacts would be similar to those described under Alternative 1, although beneficial impacts would be reduced to minor due to restoration ratios for sagebrush being only 1:1. Although restoration on a broad scale would remain adequate because habitat loss would still be replaced, restoration results would not be as dramatic as under Alternative 1.

Townsend's Big-eared Bat and Fringed Myotis

Upland Sagebrush Habitat (Wyoming and Mountain Big Sagebrush Communities): Impacts would be similar to those described in Alternative 1, except that beneficial, long-term impacts would be reduced from moderate to minor. This would be due to placing an emphasis on increasing livestock forage by reducing sagebrush cover with prescribed or wildland fire and maintaining or increasing road density in Wyoming big sagebrush communities.

Riparian and Wetland Communities: Impacts would be the same as described under Alternative 1.

Moist and Dry Forest Communities: Under Alternative 2, old growth stands determined to be in excess of habitat needs and those stands that have some old growth components, but lack overall structure, would be managed for maximum sustained yield of timber (except for stands in protected areas such as WSAs, ACECs, etc). This could result in less old growth acreage being maintained than the ten percent minimum under the No Action Alternative. Adverse impacts to old growth dependent species such as the fringed myotis would be major and long-term. Adverse impacts to Townsend's big-eared bat would be moderate and long-term.

Non-Native Annual Grass Communities: Impacts would be the same as described under the No Action Alternative 1.

White-tailed Jackrabbit

Although juniper reductions would target Phase I and II stands only if it would improve forage and wood products, which would reduce the overall acreage treated compared to Alternative 1, overall impacts would be the same.

*Washington Ground Squirrel*Unoccupied Habitat

While Alternative 2 would allow for a higher utilization target for livestock grazing, maintaining or improving rangeland health is not solely determined by forage utilization level, but, rather, by a combination of timing of grazing and utilization (Brewer et al. 2007). Therefore, vegetation management would have the same effects to Washington ground Squirrel habitat as under Alternative 1.

Occupied Habitat

Impacts to occupied habitat would be the same as described under the No Action Alternative.

Western Burrowing Owl

Impacts would be similar to those analyzed under Alternative 1; however, long-term, beneficial effects would be reduced to minor (compared to moderate under Alternative 2) because less emphasis would be placed on increasing native plant diversity and vegetation structure. In addition, juniper reduction would focus on areas that are economically viable instead of being emphasized for habitat restoration.

Greater Sage-grouse

Maintaining or increasing road densities within Wyoming big sagebrush community under Alternative 2 would further fragment and reduce sage-grouse habitat (Sveum et al. 1998). Reducing Wyoming big sagebrush cover to improve perennial understory vegetation production for livestock use would reduce the quality of sage-grouse habitat. While restoring Wyoming sage-grouse at a ratio of 1:1 would provide greater benefits than under the No Action Alternative, where there is no restoration given, it would be the lowest rate of restoration. This would be the least beneficial among the action alternatives, especially since restoration efforts would focus on increasing livestock AUMs, which is not always conducive to sage-grouse habitat needs because livestock can cause direct damage to nests and screening cover depending on the duration and timing of grazing (France et al. 2008; Beck and Mitchell 2000; Crawford et al. 2004).

Impacts from managing perennial grasses would be the same as identified under the No Action Alternative, which may not be adequate for sage-grouse nesting/hiding cover. Initial targets set for riparian stubble height (2-3 inches for stable stream banks and 3-4 inches for vulnerable stream banks) would be below the minimum of 5 inches required for sage-grouse habitat needs

(Connelly et al. 2000). Controlling for Western juniper only if it increases forage or woodland production may exclude treating areas where juniper encroachment has been detrimental for sage-grouse habitat.

Overall, even compared to the No Action Alternative, Alternative 2 would provide the fewest management actions among the action alternatives that would protect sage-grouse habitat within Wyoming big sagebrush communities, as it gives more leeway for the use of livestock utilization, duration, and intensity. Overall, long-term impacts would be adverse, with the magnitude of impacts being similar to the No Action Alternative (i.e., moderate).

Columbia Spotted Frog

Alternative 2 would provide the least protection measures to spotted frog habitat among the other action alternatives due to setting the least restrictive stubble height within riparian areas. Setting the minimal stubble height along riparian areas at 2 inches under Alternative 2 may meet minimum biologic needs; however, repeated stubble height less than 2 inches can be detrimental for Columbia spotted frog habitat. Adverse impacts would be long-term and moderate.

Impacts from Wildlife

Ferruginous Hawk

Impacts would be similar to those described under Alternative 1, although the long-term magnitude of beneficial impacts would be reduced (from moderate to a range of minor to moderate under Alternative 2) as only mature junipers with existing raptor nests would be retained.

Greater Sage-grouse

Alternative 2 has fewer considerations for protecting sage-grouse habitat when compared to all other alternatives. Basing opportunities to decommission roads and trails causing wildlife resource damage where they do not conflict with commodity use would result in more roads remaining open in the Decision Area compared to the other action alternatives. This would lead to fewer opportunities to reduce fragmentation and disturbance to sage-grouse habitat. Alternative 2 would also result in a greater potential for sagebrush canopy cover to fall below 15 percent, as there are management actions to reduce sagebrush creating more AUMs for livestock. This would increase the importance of other habitat components like travel and riparian corridors. Restoring and/or enhancing wildlife travel corridors would be considered under Alternative 2 only if it does not interfere with commodity use, which decreases the likelihood that this would occur, as enhancing and restoring areas for sage-grouse may entail increasing sagebrush plant communities, potentially decreasing AUMs for livestock. Overall, adverse impacts under Alternative 2 would be long-term and moderate.

Impacts from Special Status Species*Greater Sage-grouse*

Among the action alternatives, Alternative 2 would provide the fewest management actions that benefit sage-grouse habitat. For example, Alternative 2 would retain 70 percent of sagebrush but only focus on age classes of 3 and 4 instead of 4 and 5, which would potentially reduce the amount of sagebrush within sage-grouse habitat (Karl and Sadowski 2005). Alternative 2 also proposes a canopy cover of 5 to 15 percent, which would not be beneficial to sage-grouse as the species prefer areas that have a canopy cover of 25 percent or greater for nesting purposes (Hagen 2005). In addition, excluding only 2,396 acres from new ROWs under Alternative 2 would protect less than 1 percent of key sage-grouse habitat from all land-use authorizations, while identifying 73,647 acres as avoidance areas would protect 44 percent of the key sage-grouse habitat. While avoidance areas could potentially be developed for wind energy development, mitigations would be required on a project-by-project basis and analyzed through the NEPA process, which would greatly reduce the potential for impacts.

Designating a 2-mile avoidance buffer around occupied sage-grouse leks under Alternative 2 would protect less than 80 percent of the nesting habitat used by female sage-grouse (ODFW 2009). A conservation percentage that is less than 80 percent would result in compromised sage-grouse population numbers.

Alternative 2 would also have the potential for more acres of sage-grouse habitat being burned before it is assessed to see if restoration is needed. Even if restoration were deemed necessary, it would not occur if it would reduce livestock AUMs, thus leading to greater potential for adverse impacts to sage-grouse habitat from fire and a lack of restoration efforts. Overall, impacts would be adverse, long-term, and moderate.

Impacts from Fire and Fuels Management*Greater Sage-grouse*

While the types of impacts would be similar to those described under the No Action Alternative, overall impacts would be adverse instead of beneficial due to fewer protection measures provided for sage-grouse habitat when compared to Alternative 1. Under Alternative 2, 40 acres of sage-grouse habitat would need to burn prior to the area being assessed to see if restoration is needed. Even if restoration were deemed necessary, restoration would not take place if it would reduce livestock AUMs, increasing the likelihood that restoration would not take place due to potentially decreasing AUMs by increasing shrub cover for sage-grouse. Overall, Alternative 2 would have long-term, adverse impacts to sage-grouse habitat that would range from minor to moderate in magnitude.

Impacts from Forest and Woodland Products*Townsend's Big-eared Bat and Fringed Myotis*

Impacts under Alternative 2 that result in forest products management would be very similar to those described under the No Action Alternative. The main difference between the two alternatives is that management emphasis under Alternative 2 would be on maximizing the yield of forest products through commercial timber harvest and ensuring a future sustained yield through intensive silvicultural practices, which would increase the amount of timber harvested. As a result, adverse, long-term impacts to bats would remain moderate.

Lewis's Woodpecker

Increasing timber yields and timber production, and treating for even age forest structure would generally not be conducive to the retention or creation of Lewis's woodpecker habitat. On the other hand, Lewis's woodpeckers within ponderosa pine forests can tolerate higher thinning ratios that create open mature forest structures. In addition, less extensive riparian restoration under Alternative 2 may lead to the reduction of cottonwoods. Overall, adverse, long-term impacts to Lewis's woodpecker habitat would be moderate.

White-headed Woodpecker

Although Alternative 2 focuses on increasing timber yields and even-aged forest structures, which would reduce the quality of white-headed woodpecker habitat, protecting mature trees over 21 inches in diameter in ponderosa pine forests would promote old-growth conditions. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Impacts from Livestock Grazing*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to those identified under Alternative 1, except that actions under Alternative 2 would be less beneficial than Alternative 1, but more protective than the No Action Alternative. Beneficial impacts would be long-term, but negligible to minor in magnitude.

White-tailed Jackrabbit

Although similar to Alternative 1 in the proposed use of fire as a management tool, Alternative 2 would encourage the reduction of mountain big sagebrush cover to increase forage capability for livestock grazing. In addition, utilization targets would focus on grazing systems as described in the No Action Alternative. Such actions would result in decline of mountain big sagebrush habitat quality and quantity. Adverse impacts to white-tailed jackrabbits would be long-term and range from minor to moderate.

Impacts from Transportation*Gray Wolf*

Compared to the other action alternatives, Alternative 2 gives less consideration to reducing road densities and gives more emphasis to the development of road and trails for the purpose of commodity use, such as timber harvesting and energy development. This would likely result in increased road densities to access projects, including into areas containing gray wolf habitat. As a result, while Alternative 2 would result in considerably fewer acres open to cross-country travel compared to the No Action Alternative, the potential for increased road density would result in overall similar magnitude of long-term, adverse impacts (i.e., moderate).

Greater Sage-grouse

Impacts would be similar to those described under Alternative 1, with the exception of impacts from areas open to cross-country travel. Alternative 2 proposes nearly five times more acres open to OHV use than Alternative 1, which would increase the area potentially disturbed by OHV use by five times. Such uses would include anthropologic disturbances (e.g. recreation) that would not be conducive to habitat and life-history needs of sage-grouse. Repeated disturbances may stress individual sage-grouse causing them to shift their use-patterns (Lyon and Anderson 2003; Aldridge et al. 2008; Aldridge and Beyer 2007). Impacts, however, would be considerably less extensive than under the No Action Alternative. Overall beneficial impacts would be long-term and minor in magnitude.

Columbia Spotted Frog

Compared to Alternative 1, Alternative 2 places a greater emphasis on road development and maintenance to enhance commodity opportunities, which would result in fewer protection measures for Columbia spotted frog management. This would increase adverse, long-term impacts to moderate under Alternative 2, compared to minor under Alternative 1.

Impacts from Lands and Realty*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to Alternative 1, although beneficial impacts would be less extensive due to fewer acres that would be located in avoidance and exclusion areas. Beneficial impacts, however, would be more extensive than under the No Action Alternative.

Western Burrowing Owl

Impacts from lands available for ROWs, including future wind energy developments, would be the same as described under the No Action Alternative. Designating a utility corridor width of 6,000 feet under Alternative 2, which is wider than all the other action alternatives, would open

areas with suitable Western burrowing owl habitat to disturbance. Overall, Alternative 2 would have long-term, moderate, and in some instances major, adverse effects to Western burrowing owl habitat.

Ferruginous Hawk

Impacts from utility corridor construction would be similar to the No Action Alternative, although potential for adverse impacts would be greater because Alternative 2 proposes the greatest area available for utility corridor construction, and potentially would include areas with suitable ferruginous hawk habitat. Overall, adverse, long-term impacts would remain moderate.

Impacts from lands available for energy development would be similar to the No Action Alternative; however, the extent of impacts would increase due to more acres being available under Alternative 2 compared to the No Action Alternative.

Greater Sage-grouse

Alternative 2 would offer the least protection measures among all the alternatives, including the No Action Alternative, for sage-grouse habitat under the Lands and Realty program. While wind energy developments would be avoided on 82,096 acres or 51 percent of the key sage-grouse habitat, Alternative 2 would result in a 67 percent reduction in habitat conservation compared to Alternative 1. In addition, lek buffers of 2 miles proposed under Alternative 2 falls below BLM policy of a minimum of 3 miles, and would protect less than 1 percent of key sage-grouse habitat from all land-use authorizations (1,909 acres). This alternative falls below the 80 percent protection buffer needed to maintain small isolated populations at its northern periphery (such as in Baker County). In turn, sage-grouse may not be able to withstand loss of nesting habitat and sage-grouse populations would potentially decrease leading to unviable/non-sustaining populations (ODFW 2009). Therefore, Alternative 2 would not be viable for sage-grouse habitat and/or populations. Overall, adverse impacts from Alternative 2 would be long-term and moderate to major.

Impacts from ACECs

Townsend's Big-eared Bat and Fringed Myotis

Compared to all other alternatives, Alternative 2 would designate the least amount of ACEC acreage and would therefore provide the least amount of protection to bats and their habitats, reducing long-term, beneficial impacts to negligible.

Alternative 3

Impacts Same as under the No Action Alternative

- Impacts from Special Status Species to White-tailed Jackrabbit and Ferruginous Hawk

- Impacts from Fire and Fuels Management to Pygmy Rabbit
- Impacts from Livestock Grazing to Washington Ground Squirrel
- Impacts from Minerals to Greater Sage-grouse and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Lands and Realty to Washington Ground Squirrel
- Impacts from ACECs to Greater Sage-grouse

Impacts Same as under Alternative 1

- Impacts from Soil Resources to Washington Ground Squirrel, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Vegetative Communities to Greater Sage-grouse, White-tailed jackrabbit, Lewis's Woodpecker, White-headed Woodpecker, Townsends Big-eared Bat and Fringed Myotis, Western Burrowing Owl, and Ferruginous Hawk
- Impacts from Invasive Plants and Noxious Weeds to Greater Sage-grouse and Columbia Spotted Frog
- Impacts from Wildlife to Gray Wolf, Greater Sage-grouse, Pygmy Rabbit, White-headed Woodpecker, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Special Status Species to Gray Wolf, Washington Ground Squirrel, and Columbia Spotted Frog
- Impacts from Fire and Fuels Management to Columbia Spotted Frog, White-tailed Jackrabbit, Lewis's Woodpecker, White-headed Woodpecker, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to Greater Sage-grouse, Columbia Spotted Frog, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Minerals to Columbia Spotted Frog
- Impacts from Recreation to Greater Sage-grouse
- Impacts from Transportation to Columbia Spotted Frog
- Impacts from Lands and Realty to Western Burrowing Owl and Ferruginous Hawk

Impacts Same as under Alternative 2

- Impacts from Vegetative Communities to Washington Ground Squirrel, Columbia Spotted Frog, and Pygmy Rabbit
- Impacts from Wildlife to Ferruginous hawk
- Impacts from Forest and Woodland Products to Lewis's Woodpecker, White-headed Woodpecker, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Livestock grazing to Greater Sage-grouse, Columbia Spotted Frog, White-tailed jackrabbit, Pygmy Rabbit, and Western Burrowing Owl

Impacts from Water Resources*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to those described under Alternative 2; however, beneficial impacts would be slightly more intense due to an increase in the amount of riparian habitat restoration that would occur every ten years, which would maintain or increase the diversity of herbaceous vegetation needed by prey species and improve or maintain quality sources of open water for drinking. Beneficial impacts to foraging habitat for bats would be long-term and minor.

Greater Sage-grouse

The beneficial impacts from water resource management under Alternative 3 would lie somewhere between those described under Alternatives 1 and 2. Impacts from road improvements would be similar to Alternative 2, while impacts from the amount of proposed stream restoration would fall between Alternative 1 and 2. Overall, beneficial, long-term impacts to sage-grouse would be minor.

Columbia Spotted Frog

Impacts would be the same as identified above for greater sage-grouse.

Impacts from Special Status Species*Greater Sage-grouse*

Impacts would be similar to those described under Alternative 2, except avoidance buffers would be 3 miles and used on occupied leks, which would help to achieve the 80 percent sagebrush conservation needed for sage-grouse habitat. However, because avoidance buffers are only used on occupied leks, it would not encompass historic/unoccupied leks that sage-grouse could potentially utilize. Impacts would be long-term, adverse, and minor to moderate.

Impacts from Fire and Fuels Management*Greater Sage-grouse*

Impacts would be similar to those described under Alternative 1, although evaluating wildfires burning more than 25 acres of sage-grouse habitat to determine if treatment is necessary (compared to 10 acres under Alternative 1) would reduce the magnitude of beneficial, long-term impacts to minor (compared to moderate under Alternative 1).

Impacts from Livestock grazing*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to those described under Alternative 1, although slightly more extensive due to a greater reduction in livestock grazing AUMs and fewer acres available for grazing. Long-term, beneficial impacts would remain moderate under Alternative 3.

Impacts from Transportation*Gray Wolf*

Impacts would be similar to those described under Alternative 2, although adverse impacts would be slightly less extensive due to more areas that are closed to motorized use.

Greater Sage-grouse

Impacts would be similar to those described under Alternative 2, although adverse impacts would be more extensive because more areas are open to motorized use and fewer acres closed to motorized use.

Impacts from Lands and Realty*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to those identified under Alternative; however, beneficial impacts would be less widespread due to fewer acres within avoidance or exclusion areas. Long-term, beneficial impacts would be more extensive than under Alternative 2. Overall, beneficial impacts would remain in the minor to moderate range.

Greater Sage-grouse

Alternative 3 impacts for ROW would be similar to those described under Alternative 1. However, Alternative 3 would designate a lek buffer of 3 miles only around occupied sage-grouse lek sites (110,970 acres), and leks that are classified as unoccupied would not receive protection buffers. Under this alternative, 13,295 acres, or less than 8 percent of greater sage-grouse key habitat, are protected from all land use authorizations. Areas unavailable for wind energy development would total 104,592 acres, or around 60 percent; however, these areas could potentially be developed for wind energy. These areas would have more concerns and mitigation challenges because they would fall within sage-grouse habitat. Mitigation measures would have to alleviate impacts through NEPA analysis. Because this Alternative only protects occupied leks, this would reduce the extent of beneficial impacts identified under Alternative 1 (which encompasses occupied and unoccupied leks). Impacts would be long-term, adverse, and minor.

Impact from ACECs*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be closest in similarity to the No Action Alternative due to the total acres that would fall under ACEC designation, although beneficial impacts would be slightly more extensive under Alternative 3, due to 1,426 more acres under the protection of ACEC management.

Alternative 4Impacts Same as under the No Action Alternative

- Impacts from Special Status Species to White-tailed Jackrabbit and Ferruginous hawk
- Impacts from Minerals to Greater Sage-grouse and Townsend's Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to Washington Ground Squirrel

Impacts Same as under Alternative 1

- Impacts from Soil Resources to Washington Ground Squirrel and Pygmy Rabbit
- Impacts from Vegetative Communities to Townsend's Big-eared Bat and Fringed Myotis, Washington Ground Squirrel, White-tailed Jackrabbit, Lewis's Woodpecker, White-headed Woodpecker, and Western Burrowing Owl
- Impacts from Invasive Plants and Noxious Weeds to Greater Sage-grouse and Columbia Spotted Frog
- Impacts from Wildlife to Gray Wolf, Pygmy Rabbit, Townsend's Big-eared Bat and Fringed Myotis, White-headed Woodpecker, and Ferruginous Hawk
- Impacts from Special Status Species to Gray Wolf, Washington Ground Squirrel, and Columbia Spotted Frog
- Impacts from Fire and Fuels Management to Columbia Spotted Frog, White-tailed Jackrabbit, Pygmy Rabbit, Lewis's Woodpecker, White-headed Woodpecker, and Townsend's Big-eared Bat and Fringed Myotis
- Impacts from Forest and Woodland Products to Lewis's Woodpecker, White-headed Woodpecker, and Townsend's Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to Greater Sage-grouse, Columbia Spotted Frog, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Livestock grazing to Greater Sage-grouse, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Minerals to Columbia Spotted Frog
- Impacts from Recreation to Greater Sage-grouse
- Impacts from Transportation to Columbia Spotted Frog
- Impacts from Lands and Realty to Washington Ground Squirrel

- Impacts from ACECs to Townsends Big-eared Bat and Fringed Myotis

Impacts from Water Resources

Townsends Big-eared Bat and Fringed Myotis

Impacts would be similar to those described under Alternative 1, although more extensive due to an additional 30 miles of riparian restoration that would occur every ten years, which would increase long-term, beneficial impacts to moderate.

Greater Sage-grouse

Impacts are similar to those described in Alternative 1, except beneficial impacts would be more extensive due to 80 more miles of streams being restored every 10 years, compared to 50 under Alternative 1.

Columbia Spotted Frog

Impacts would be the same as identified above for greater sage-grouse.

Impacts from Soil Resources

Western Burrowing Owl

Impacts would be similar to those as described under Alternative 1, except that prohibiting summer grazing and setting a light utilization level under Alternative 1 would result in a greater increase of biological crust mats (c.f., Pozetti and McCune 2001). Beneficial impacts would be moderate and long-term.

Impacts from Vegetative Communities

Greater Sage-grouse

Alternative 4 proposed management actions aimed at maintaining 100 percent of existing sagebrush habitats and enhancing potential habitats that have been disturbed. Setting a light upland utilization target of 21-40 percent for all grazing allotments would retain adequate perennial grasses for nesting (Connelly et al. 2000) and leave stubble heights greater than 7 inches, which would keep sage-grouse nest predation at a low level (Sveum et al. 1996; Hagen et al. 2007; Connelly et al. 2000; Crawford et al. 2004). Using firebreaks between annual grasslands and native sagebrush communities, and restoring Wyoming big sagebrush loss at a ratio of 3:1, would aid in conserving sagebrush habitat and reducing fragmentation to a greater degree than under the previous alternatives discussed (i.e. Alternative 1 and 3 2:1 ratio and Alternative 2 1:1). Setting targets for initial riparian stubble height at 6-8 inches for stream banks would ensure the presence of adequate residual forbs and grasses for brood-rearing

(Fischer et al. 1996). Reducing juniper woodlands to approximate historic acreages would also aid in reducing fragmentation to sage-grouse home ranges. Overall, these actions would have moderate to major, long-term, beneficial impacts to sage-grouse habitat.

Columbia Spotted Frog

Impacts are the same as described in Alternative 1, except extensive monitoring length for streams is shorter and stubble height is higher, which would be more beneficial for Columbia spotted frog habitat.

Pygmy Rabbit

Impacts would be similar to those described under Alternative 1, except that restoring Wyoming big sagebrush at a 3:1 ratio would increase potential habitat for pygmy rabbit.

Moist and Dry Forest Communities: Impacts would be similar to those identified under Alternative 1, except they would be more widespread due to a greater emphasis on maintaining old growth stands and restoring old growth structure.

Ferruginous Hawk

Impacts would be similar to Alternative 1, except that beneficial impacts from reduction in juniper would be more widespread due to roughly 1,000 more acres proposed for treatment per year, which would further reduce fragmentation within the species' home-range. Overall, long-term, beneficial impacts under Alternative 4 would range from moderate to major.

Impacts from Wildlife

Greater Sage-grouse

Impacts would be similar to those described under Alternative 1, although more intense management actions directed at reducing habitat fragmentation (e.g., no net increase in the number of BLM roads) would contribute toward the long-term, beneficial impacts being moderate.

Impacts from Special Status Species

Greater Sage-grouse

Alternative 4 would provide the most intensive management that would benefit sage-grouse habitat and populations among the alternatives discussed thus far (including the No Action Alternative). This includes maintaining all existing sagebrush habitats and enhancing pre-disturbed potential habitats. This alternative uses the boundary of key habitat identified by the BLM to help protect sage-grouse habitat. The area protected by the boundary of key habitat

would include areas that sage-grouse can use for all life-cycles. Overall, beneficial impacts to sage-grouse habitat would be long-term and range from moderate to major.

Impacts from Livestock Grazing

Columbia Spotted Frog

Impacts would be the similar as described in Alternative 1, except that lighter utilization target levels would result in slightly more intense beneficial impacts to spotted frog habitat over the long term.

White-tailed jackrabbit

Overall impacts would be similar to those described in Alternative 1. A lighter utilization level under Alternative 4, however, would be more conducive to white-tailed jackrabbit habitat because it would leave a greater food source and hiding cover for them to utilize. In addition to light utilization, this alternative would reduce Western juniper by 1,500 to 3,000 acres per year, benefiting white-tailed jackrabbits by creating more habitat. Overall, impacts under Alternative 4 would be beneficial, long-term, and range from moderate to major.

Townsend's Big-eared Bat and Fringed Myotis

Greatly decreasing grazing pressure under Alternative 4, more so than found in the previously discussed alternatives, would greatly reduce or eliminate adverse impacts identified under the No Action Alternative. Overall beneficial impacts to bat species and their habitats would be similar to Alternative 1 (long-term and moderate), although more widespread.

Impacts from Transportation

Gray Wolf

Impacts would be similar as described under Alternative 1, except that beneficial impacts to wolf habitat would be more widespread due to more roads closed under Alternative 4.

Greater Sage-grouse

Impacts would be similar as described under Alternative 1.

Impacts from Lands and Realty

Townsend's Big-eared Bat and Fringed Myotis

Impacts would be similar to those identified under Alternative 1, except that beneficial impacts would be more widespread due to more acres within avoidance or exclusion areas.

Western Burrowing Owl

Impacts would be similar to those identified under Alternative 1, except that beneficial impacts would be more widespread due to more acres within avoidance or exclusion areas.

Ferruginous Hawk

Impacts would be similar to those described under Alternative 1, except that protection from wind development would be more widespread due to more acres identified as exclusion and avoidance areas. This would increase the magnitude of beneficial, long-term impacts to moderate.

Greater Sage-grouse

Alternative 4 introduces and designates key habitat for the greater sage-grouse. Key habitat is defined as areas within the Decision Area where the spatial extent of potential and/or existing habitats have been refined beyond a general habitat description and mapped to show fundamental (core) areas of use for the greater sage-grouse. Such areas incorporate breeding, nesting, brooding, and wintering areas for sage-grouse. While sage-grouse could still use areas outside of identified key habitats, key habitat are areas where populations could perpetuate themselves into the future (i.e. core/stronghold areas), which would occur over the life of the RMP. Under Alternative 4, all land-use authorizations would be avoided on 126,996 acres of key habitat, which equals 73 percent of the Decision Area. In addition, 45,482 acres, or 26 percent of greater sage-grouse key habitat, would be excluded from all land-use authorizations. Avoidance areas from this alternative would be 126,996 or 73 percent of greater sage-grouse key habitat. This would be beneficial for sage-grouse as it would protect over 80 percent of their habitat, which would be adequate to conserve sage-grouse populations (ODFW 2009).

In addition to the above beneficial impacts due to identifying and designating key habitat areas for sage-grouse, Alternative 1 proposes greater set-back distances than the previous alternatives discussed, which would increase the total number of acres protected. In addition, the proposed Virtue Flat and Denny Flat ACECs would receive a 5-mile buffer that would exclude all land use authorizations. Instead of protection buffers, key habitat would take precedent. This would be conducive to the needs for habitat conservation as requested by USFWS and ODFW because it would allow for over 80 percent of sage-grouse leks and habitat to be protected. Overall, beneficial impacts under Alternative 4 would be long-term and moderate.

Impact from ACECs*Greater Sage-grouse*

Impacts would be similar to those described under Alternative 1; however, the exclusion area for land authorizations would increase from 3 miles to 5 miles, which would create beneficial

impacts that would be more intensive in the Virtue Flat and Denny Flat ACECs. Overall, long-term, beneficial impacts would remain moderate in magnitude.

Alternative 5

Impacts Same as under the No Action Alternative

- Impacts from Special Status Species to White-tailed Jackrabbit, and Ferruginous Hawk
- Impacts from Livestock Grazing to Washington Ground Squirrel
- Impacts from Minerals to Greater Sage-grouse and Townsends Big-eared Bat and Fringed Myotis

Impacts Same as under Alternative 1

- Impacts from Soil Resources to Washington Ground Squirrel, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Vegetative Communities to Washington Ground Squirrel, Townsends Big-eared Bat and Fringed Myotis , and Western Burrowing Owl
- Impacts from Invasive Plants and Noxious Weeds to Columbia Spotted Frog
- Impacts from Wildlife to Gray Wolf, Pygmy Rabbit, White-headed Woodpecker, Townsends Big-eared Bat and Fringed Myotis , and Ferruginous Hawk
- Impacts from Special Status Species to Gray Wolf, Washington Ground Squirrel, and Columbia Spotted Frog
- Impacts from Fire and Fuels Management to Greater Sage-grouse, Columbia Spotted Frog, White-tailed jackrabbit, Pygmy Rabbit, Lewis's Woodpecker, White-headed Woodpecker, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Livestock Grazing to White-tailed Jackrabbit, Pygmy Rabbit, and Western Burrowing Owl
- Impacts from Recreation to Greater Sage-grouse
- Impacts from Minerals to Columbia Spotted Frog
- Impacts from Transportation to Gray Wolf, Greater Sage-grouse, and Columbia Spotted Frog
- Impacts from Lands and Realty to Washington Ground Squirrel
- Impacts from ACECs to Townsends Big-eared Bat and Fringed Myotis

Impacts Same as under Alternative 4

- Impacts from Water Resources to Greater Sage-grouse, Columbia Spotted Frog, and Townsends Big-eared Bat and Fringed Myotis
- Impacts from Vegetative Communities to Greater Sage-grouse, and Columbia Spotted Frog
- Impacts from Wildlife to Greater Sage-grouse
- Impacts from Livestock Grazing to Greater Sage-grouse and Columbia Spotted Frog

- Impacts from Lands and Realty to Western Burrowing Owl and Ferruginous Hawk
- Impacts from ACECs to Greater Sage-grouse

Impacts from Vegetative Communities

Pygmy Rabbit

Impacts would be similar to those analyzed under Alternative 1, except that beneficial impacts would be more extensive under Alternative 3, as the ratio of restoration for Wyoming big sagebrush would be 3:1, which would increase potential habitat for the pygmy rabbit.

White-tailed Jackrabbit

Impacts would be similar as described in Alternative 1, except that beneficial impact would not be as extensive because juniper reduction would only take place in Wyoming big sagebrush communities. This would leave mountain big sagebrush communities, which are important to jackrabbits, vulnerable to further juniper encroachment. Overall, beneficial, long-term impacts would be reduced to a range of minor to moderate.

Ferruginous Hawk

Impacts would be similar to those described under Alternative 1, except that beneficial impacts from reduction in juniper acreage would be limited to areas where juniper is encroaching on riparian and/or Wyoming big sagebrush communities. Overall, beneficial, long-term impacts would be reduced to a range of minor to moderate.

Lewis's Woodpecker

Impacts would be similar to those described under Alternative 1, except that the progression to a desired outcome would occur at a slower rate because a less active restoration emphasis would be used.

White-headed Woodpecker

Impacts would be similar to those described under Alternative 1, except that the progression to a desired outcome would occur at a slower rate because a less active restoration emphasis would be used.

Impacts from Invasive Plants and Noxious Weeds*Greater Sage-grouse*

Impacts would be similar to those described under Alternative 1, except that the lack of chemical use in the treatment of weeds may not result in the desired protection of native plant communities that sage-grouse rely on for their life-cycle needs.

Impacts from Special Status Species*Greater Sage-grouse*

Providing a 5-mile lek buffer around all sage-grouse lek sites under Alternative 5 would protect over 80 percent of existing occupied and unoccupied leks, and is the preferred size of a buffer to provide adequate protection for nesting and brooding sage-grouse (USFWS 2004a). This would provide contiguous, secure sage-grouse breeding habitat with minimal disturbance and harassment. Excluding all land use authorizations within the Virtue Flat and Denny Flat ACECs would provide even more protection to important sage-grouse habitat within those ACECs. Overall, Alternative 5 would be the most conducive to sage-grouse habitat needs among the alternatives because it provides habitat for breeding, wintering, and brood rearing. Overall, beneficial impacts to sage-grouse habitat would be long-term and major.

Impacts from Forest and Woodland Products*Townsend's Big-eared Bat and Fringed Myotis*

The treatment of the fewest acres of forests and woodland stands would occur under Alternative 5 and would limit benefits to old growth forests and those stands with old growth characteristics by allowing continued overstocking, which would pose a hazard of uncharacteristically severe stand-replacing fires. Adverse impacts to bat foraging habitat would be long-term and minor.

Lewis's Woodpecker

Limiting active management within forested ecosystems may limit protection from catastrophic fire, insect/disease outbreaks, and conifer encroachment into riparian habitats, which could reduce habitat for the Lewis's woodpecker. Overall, impacts would be adverse, long-term, and range from moderate to major.

White-headed Woodpecker

Impacts would be the same as identified above for Lewis's Woodpecker.

Impacts from Livestock grazing*Townsend's Big-eared Bat and Fringed Myotis*

Since Alternative 5 proposes the least amount of grazing acres and AUMs among the action alternatives (with the exception of Alternative 5a), the impacts to bat foraging habitat resulting from livestock grazing identified under the previous alternatives would be greatly reduced.

Impacts from Lands and Realty*Townsend's Big-eared Bat and Fringed Myotis*

Impacts would be similar to those identified under Alternative 4; however, beneficial impacts would be more widespread due to more acres within exclusion areas. There are fewer acres in avoidance areas under Alternative 5; however, the substantial increase of acres in exclusions areas, including the 5-mile exclusion areas around all sage-grouse leks, would have long-term, moderate to major benefits to bats and their habitats.

Greater Sage-grouse

Designating all proposed and existing ACECs and Powder River WSR as exclusion areas would protect approximately 30 percent of the identified key sage-grouse habitat from new ROW development. In addition, placing a 5-mile exclusion area buffer for wind development around all leks would protect 114,738 acres of identified key sage-grouse habitat. The 5-mile buffer would be adequate to protect the habitat for all types of sage-grouse populations (USFWS 2004a). Overall, Alternative 5 precludes 96 percent of identified key sage-grouse habitat from wind energy and other ROW developments, which is the greatest percentage of breeding, wintering, and brood-rearing habitat protected among the alternatives. Overall, beneficial impacts to sage-grouse habitat would be long-term and major.

Alternative 5a

Impacts would be the same as described under Alternative 5, with the exceptions described below.

Impacts from Livestock Grazing*Pygmy Rabbit*

Although no grazing under Alternative 5a may perpetuate noxious weed species throughout the Decision Area, it would also ensure residual forage for nesting and hiding cover for pygmy rabbits. Overall, impacts would be beneficial, long-term, and minor.

Townsend's Big-eared Bat and Fringed Myotis

Due to no livestock grazing allowed under Alternative 5a, riparian areas and understory vegetation would recover and return to desired conditions at a faster rate than under the other alternatives. Excluding livestock would provide long-term protection of foraging habitat, increasing long-term viability and improving habitat condition. This would allow for maximum grass, forb, and flower production that would attract insects within the riparian areas and thereby increase the prey base for bat species.

White-tailed Jackrabbit

Because no grazing would leave adequate hiding cover and food sources for jackrabbit populations, implementing no grazing under Alternative 5a would have beneficial, long-term, major impacts to white-tailed jackrabbit habitat.

Washington Ground Squirrel

Studies have shown that Washington ground squirrel populations succeed on lands where livestock grazing was excluded for long periods of time (Betts 1990). One reason is that excluding livestock grazing eliminates adverse impacts to biotic crust from trampling. Following this, excluding livestock grazing under Alternative 5a would have major, long-term, beneficial impacts on the quality of Washington ground squirrel habitat in the Decision Area, especially on unoccupied habitat that is currently under little protection.

Western Burrowing Owl

Since livestock grazing can open dense sagebrush stands, making the habitat in the area more suitable for burrowing owls, excluding livestock grazing would not provide such benefits. Impacts would be adverse, long-term, and minor.

Ferruginous Hawk

Alternative 5a could result in converting Wyoming big sagebrush into a non-native annual grass community, which would have adverse effects to ferruginous hawks. Overall, Alternative 5 would have moderate, long-term, adverse effects to ferruginous hawk habitat.

Greater Sage-grouse

Not permitting livestock grazing under Alternative 5 may increase the spread of weeds on rangelands. It would also result in the buildup of grass litter, which could increase fire severity, frequency, and potential fire size (Davies et al. 2009). This, in turn, would permanently destroy Wyoming big sagebrush communities and reduce native grasses and forbs from annual grass communities, which would be devastating to sage-grouse habitats. Overall, impacts would be long-term, adverse, and range from minor to moderate.

c. Cumulative Impacts*No-Action Alternative*Pygmy Rabbit*Past Actions and Present Actions*

Potential pygmy rabbit habitat is highly fragmented in the Planning Area due to past management of public and private lands, historic rangeland activities (e.g., herbicide treatment, prescribed burns, and conversion of sagebrush into agricultural lands), and development, all of which has fragmented Wyoming big sagebrush habitats (Gabler et al. 2000). Managing vegetation within the Decision Area to fall in the mid- to late-seral cover class under the current Baker RMP (BLM 1989) has benefited pygmy rabbits by providing adequate cover for nesting and hiding (Thines et al. 2004). Current fire management supports potential pygmy rabbit habitat by using Resource Advisors (RA) who are knowledgeable about wildlife habitats and can mitigate potential suppression impacts on-site.

Reasonably Foreseeable Future Actions

It is reasonable to assume that fire management would continue to support pygmy habitat through suppression efforts that include the use of an on-site RA. It is also likely that more attention would be given to biotic crusts to help stabilize erodible soils sites. Developments such as road construction, pad creation for wind turbines, and facility construction are also expected to continue on private and state lands adjacent to public lands, which would further reduce habitat connectivity for pygmy rabbits.

Summary of Impacts to Pygmy Rabbits under the No Action Alternative

Overall, suppressing wildfires within Wyoming sagebrush communities, mitigating adverse impacts on habitat from livestock grazing, and managing vegetative communities to achieve a mid to late-seral class would have beneficial, long-term impacts on pygmy rabbit habitat. The lack of addressing biotic crusts and specific management for habitat fragmentation would limit the extent of beneficial impacts.

Cumulative Impacts to Pygmy Rabbits under the No Action Alternative

Taking into consideration the beneficial effects of modifying management to achieve a mid-seral cover class, modifying livestock grazing, the adverse effects of ground disturbing projects, and development and fragmentation of sagebrush steppe habitat, it is expected overall to result in either minor adverse to moderate beneficial impacts to rangeland health within the Decision Area.

Gray Wolf

Past Actions and Present Actions

Although the management of wolf habitat was not addressed in the current Baker RMP (BLM 1989), the BLM followed and continues to follow direction under the Oregon Wolf Conservation and Management Plan (ODFW 2005). While no transplants or reintroductions have taken place within the Decision Area, wolves are expected to continue to disperse across the Decision Area by reintroduced and reestablished populations in Idaho. Wolves have been found within Keating Valley near Baker City, Oregon; however, no dens have been located in the Decision Area. Road networks currently give access to large expanses of public lands, which directly contribute to disturbance, fragmentation, and habitat loss for wolves.

Reasonably Foreseeable Future Actions

Although there are no established breeding populations, it is reasonable to assume that wolf populations will continue to cross into the Decision Area from adjacent lands. The USFS would continue to manage most of the suitable habitat for gray wolves within the Planning Area, creating areas where packs can become reestablished. The USFS intends to manage forest communities ranging from dense, multi-story forest to a mixture of dense and open-stand forest, which should benefit wolves by increasing prey densities (USFWS 1987). Due to limited habitat for gray wolves on BLM lands, conserving and/or restoring habitat for the gray wolves on lands adjacent to the Decision Area is important as it would reduce fragmentation and expand habitat connectivity.

It is also reasonable to assume that wolves would cross onto state lands, which would call for some changes in management if conflicts arose, such as the need to change the management of livestock. Development of private lands would be the primary cause of increased fragmentation of wolf habitat. The intensity of such impacts and how such impacts would be addressed in the future are unknown.

Summary of Impacts to Gray Wolf under the No Action Alternative

The lack of direct management of wolf habitat under the No Action Alternative (e.g., protecting large expanses of contiguous patches of sagebrush and conifers/hardwoods) would contribute to fragmentation and loss of wolf habitat. However, due to the minimal amount of suitable wolf habitat on public lands compared to USFS and private lands, the long-term, adverse impacts due to BLM actions would be minor. Beneficial impacts to wolf habitat on USFS lands would outweigh adverse impacts on public lands by providing wolves large patches of suitable habitat adjacent to public lands. Potential adverse impacts on state lands are generally unknown, but since the wolf is a State Protected Species in Oregon, adverse impacts should be minimized. The contribution of adverse impacts on adjacent private lands is uncertain, although it may lead to further fragmentation of potential wolf habitat on public lands that are surrounded by private lands.

Cumulative Impacts to Gray Wolf under the No Action Alternative

Taking into consideration the beneficial effects of using transplants and reintroductions as a tool when needed to increase wolf populations and the adverse effects of ground disturbing projects, development, and increasing road densities by providing management actions that do not decommission roads, it is expected that this alternative would result in long-term, moderate, adverse impacts.

Townsend's Big-eared Bat and Fringed Myotis*Past and Present Actions*

Past management actions on or adjacent to BLM lands that have reduced, fragmented, or otherwise modified bat species habitat include construction and maintenance of roads, livestock grazing, timber harvest, mining, wildland fire and suppression activities, impoundment of reservoirs, prescribed fire activity, noxious weed treatments and renewable energy development.

Impacts from other actions occurring within the Planning Area related to energy development include dams, power lines, pipelines, and wind developments. Dams along Hells Canyon have created conditions that affect bats and their habitat through changes in hydrologic function and contributions to erosion.

Reasonably Foreseeable Future Actions

Current and future demand for energy developments are expected to increase within the Planning Area. Developments on federal land could be mitigated to limit adverse effects. However, in areas of fragmented land ownership, wind developments on private and other non-federal lands have already impacted bat species on federal lands by fragmenting foraging habitat and increasing rates of mortality in flight corridors.

Increased wildland fire frequency and fire suppression on federal and non-federal lands have impacted, and would continue to impact, bat species and their habitat by eliminating or modifying foraging and roosting habitat. Fuel and vegetation treatments can reduce the risk of impacts from wildfire, but also have some risk of impacting bats. Impacts would be assessed and avoided on federal lands to mitigate or avoid these adverse impacts.

Timber harvest on adjacent lands could also contribute to habitat degradation for bat species if snag retention and old growth maintenance is not considered. Clear cuts would eliminate important foraging and roosting areas and would further fragment habitat resulting in loss of connectivity. Timber management could also alter habitat for bat species by replacing more late-seral species with early successional species that are more desirable for maximizing timber yields.

Mining and development of other fossil fuel resources is expected to increase on both federal and private lands within the reasonable foreseeable future due to expected increase in mineral prices and public demand for natural resources. These actions can lead to further habitat fragmentation for bats and cause direct loss of important roosting sites when existing underground structures are eliminated or closed without proper gating.

Summary of Impacts to Townsends Big-eared Bat and Fringed Myotis under the No Action Alternative

Under the No Action Alternative, riparian areas would continue to be impacted by livestock and there would be no reduction in the number of acres available for grazing or in allotted AUMs. Without management of encroaching juniper, there would be negative impacts to riparian and upland habitat. Timber management would be in favor of maintaining some old growth stands, mostly located in protected acres; however, commercial harvesting of stands with old growth characteristics would still occur. Potential impacts from ROW development would be highest under this alternative as there would be very few exclusion areas and no avoidance areas. Specific management actions would be designated within ACECs for conserving bat species habitat, but the total acres that would be protected is small compared to the other alternatives. Due to several factors that would negatively impact bat species and their habitat, and due to a lack of management actions that address the restoration and/or protection of roosting and foraging habitat, overall impacts under the No Action Alternative would be long-term, adverse, and minor to moderate.

Cumulative Impacts to Townsends Big-eared Bat and Fringed Myotis under the No Action Alternative

The overall cumulative impact, which takes into consideration adverse effects from lack of management for bat habitat has, like timber harvest and mining activity, lead to fragmentation of bat habitat. Therefore, both private and public lands would contribute to adverse impacts that are minor to moderate in magnitude.

White-tailed Jackrabbit

Past and Present Actions

Management in the 1930s manipulated jackrabbit habitat by converting large expanses of sagebrush in the Planning Area into grasslands, which decreased existing and potential jackrabbit habitat. Management direction changed under the current Baker RMP (BLM 1989) to managing vegetation in the mid- to late-seral cover class, which supports adequate sagebrush canopy cover for nesting and hiding areas for white-tailed jackrabbits (McAdoo and Young 1980). In addition, an attempt has been made to reintroduce fire as a management tool, including decreasing juniper encroachment, reducing fuel loads, and controlling unwanted vegetation (juniper). All such activities have helped to reverse the destruction of jackrabbit habitat that had occurred in the 1930s, although habitat conditions on public lands are not close to being back to where they were

in previous years. In addition, habitat conversion has been and continues to be a problem on adjoining state and private lands, although there have been on-going efforts to curtail juniper encroachment on such lands.

Reasonably Foreseeable Future Actions

While the expansion of juniper is primarily caused by successful fire suppression (Miller and Wigand 1994), climate change may also lead to favorable conditions for western juniper expansion (Miller and Wigand 1994). Reduction of western juniper is being undertaken across the Planning Area (including on other federal and private lands), and it is reasonable to assume that further removal of encroaching Western juniper would take place over the life of this plan. Other expected future actions that can adversely impact white-tailed jackrabbit habitat include developments of roads and facilities, including those associated with wind energy. Development on and adjacent to public lands would reduce habitat connectivity for white-tailed jackrabbit. It is also reasonable to assume that private lands would continue to be developed, which would include the disturbance of sagebrush communities, leading to further fragmentation.

Summary of Impacts to White-tailed Jackrabbit under the No Action Alternative

Managing fire as a means to reduce the expansion of western juniper, managing livestock to avoid significant resource damage, and managing rangelands in a mid- to late-seral cover class would all be beneficial to white-tailed jackrabbit habitat. Such activities would limit habitat fragmentation and support sagebrush canopy cover adequate for white-tailed jackrabbit nesting and hiding habitat. While western juniper control within white-tailed jackrabbit habitats would be very limited under the No Action Alternative compared to the other alternatives, thus not completely eliminating further fragmentation and decreases in habitat connectivity, overall impacts to jackrabbit habitat would be beneficial, long-term, and range from minor to moderate.

Cumulative Impacts to White-tailed Jackrabbits under the No Action Alternative

Taking into consideration the beneficial effects of modifying livestock grazing, reducing juniper encroachment by using fire as a tool, managing sagebrush in a mid-seral canopy structure, and the adverse effects of ground disturbing projects and lack of management for restoration of sagebrush vegetative communities that has led to fragmentation of habitat, this alternative would result in cumulative impacts that would be beneficial, long-term, and minor to moderate in magnitude.

Washington Ground Squirrel

Past Actions and Present Actions

The Washington ground Squirrel has a very restricted range because much of their habitat has been converted into agricultural lands (Betts 1999). As a result, during the last 25 years, the species population has experienced a significant decline. The last remaining stronghold of

Washington ground squirrels in Oregon is on the remaining undeveloped portion of the state-leased Boeing tract and within the Boardman Bombing range.

Within the Planning Area, known Washington ground squirrel populations are limited to the Boardman Bombing Range in Marrow County, Oregon. The Boardman Bombing Range was established in the 1940s and was in use until the early 1960s. November 22, 1960 The Army Corps of Engineers transferred ownership to the Department of the Interior (DOI) and US Navy. In 1978, the Boardman Bombing Range was researched as a natural area and had been extensively studied for wildlife and Columbia Shrub-steppe communities. To ensure that wildlife and vegetative communities were preserved, ODFW and USFWS initiated discussions in 2000 with the US Navy to protect habitats within and adjacent to the Boardman Bombing Range. These past actions have benefited occupied Washington ground squirrel habitat. In fact, this population of Washington ground squirrel may be doing better than any other known population (Betts 1990; 1999).

Potential habitat within the Decision Area for Washington ground squirrel is located within Juniper Canyon, east of the Boardman Bombing Range. Currently, livestock is managed as a part of a C allotment with no established rotation schedules and utilization set at 50 percent. These actions have negatively impacted Washington ground squirrel habitat by reducing grass cover and damaging biotic crusts. Both past and on-going developments (e.g. roads, turbines, and transmission power lines) in native sagebrush communities have converted and continue to convert and fragment Washington ground squirrel habitat. The conversion of rangelands into non-native annual grass communities has increased noxious weeds and decreased the amount of perennial grasses that are needed for squirrel habitat, thus resulting in low-quality habitat, which may be leading to declines in populations (Betts 1990; 1999).

Adjacent to the Boardman Bombing Range is Three-mile Canyon Farm, which is a privately owned operation that supports Washington ground squirrel habitat. The farm recently turned over 23,000 acres to The Nature Conservancy for management for the recovery of the Washington ground squirrel. This area is one of the largest grassland preserves in the Northwest and, being adjacent to the Boardman Bombing Range, increases the connectivity of Washington ground squirrel habitat.

Reasonably Foreseeable Future Actions

Washington ground squirrel habitat should continue to be preserved within the Boardman Bombing Range and on public lands in the adjacent Three-mile Canyon Farm over the life of this plan, which would help in keeping the species from being listed.

Summary of Impacts to Washington Ground Squirrel under the No Action Alternative

Under the No Action Alternative, ground squirrels would experience some management that would be beneficial for their habitat. For example, managing the community in a mid-seral

cover class has helped maintain potential habitat for Washington grand squirrels because this cover class has adequate hiding and food sources.

Cumulative Impacts to Washington Ground Squirrel under the No Action Alternative

Continued exclusion of livestock grazing on public and private lands on the Boardman Bombing Range and management of the adjacent private lands of Three-mile Canyon Farm would protect ground squirrel habitat and maintain connectivity to large expanses of such habitat. Beneficial impacts would be long-term and major.

The unoccupied ground squirrel habitat not adjacent to the Boardman Bombing Range would continue to be low quality due to livestock grazing management that is not consistent with promoting biotic crust cover to a level necessary to support the species (Greene et al. 2009).

Western Burrowing Owls

Past Actions and Present Actions

Local surveys have detected declining populations of burrowing owls and/or range reductions in Oregon (USFWS 2003). Such declines are attributed to habitat loss due to land conversions for agricultural and urban development, and habitat degradation and loss due to reductions of burrowing mammal populations. The elimination of burrowing mammals through control programs and habitat loss has been identified as the primary factor responsible for declines of burrowing owls. Early conversions of Wyoming sagebrush into non-native crested wheatgrass have been beneficial for Western burrowing owls. Although the species can inhabit a variety of seral classes, they prefer early to mid-seral grasslands where vegetation is sparse and terrain is level (Rich 1986). Within the Decision Area, upland vegetation has been managed to be in a mid to late-seral class, which is not as beneficial for Western burrowing owls.

Past and present livestock management has both positive and negative impacts to Western burrowing owls. A negative impact from livestock is direct trampling causing nest failure (Holmes et al. 2003). However, livestock also helps open up areas that the burrowing owls would inhabit, and livestock also provides dung that they use to attract insects and disguise their sent from oncoming predators

Reasonably Foreseeable Future Management Actions

Future developments in or adjacent to burrowing habitat, such as that associated with roads, wind energy, ROWs, and transmission lines, would continue to fragment burrowing owl habitat. Some fragmentation could be mitigated through BMPs; however, the extent of fragmentation and effects to Western burrowing owl populations are unknown.

Summary Impacts for Western Burrowing Owls under the No Action Alternative

The No Action Alternative includes the goal to maximize soil stability, which would directly benefit burrowing owls by providing adequate soil structure to support abandoned burrows of ground-dwelling mammals that owls use for nesting, resting, and storing food. On the other hand, the No Action Alternative does not provide specific management actions for biotic crusts, which are also needed to maximize soil stability (Pozetti and McCune 2001). Adjusting and/or restricting grazing in areas where livestock is found to cause significant resource damage could minimize conflicts between livestock and burrowing owls. Allowing the designation and occupation of all utility/transportation corridors identified by the Western Regional Corridor Study may displace some owls within their habitat range since some corridor widths may overlap owl habitats. Making the majority of public lands available for ROWs, including for wind energy developments, would also potentially displace burrowing owls. Overall, impacts to burrowing owls would be long-term, beneficial, and minor.

Cumulative Impacts to Western Burrowing Owls under the No Action Alternative

Taking into consideration the beneficial effects of modifying livestock grazing, maximizing soil stability, managing sagebrush in a mid-seral canopy structure, the adverse effects of ground disturbing projects, the lack of management for restoration of sagebrush vegetative communities by managing biotic crusts, and the designation of ROWs that have conflicted with Western burrowing owl habitat would result in impacts that are long-term, beneficial, and minor in magnitude.

Ferruginous Hawk*Past Actions and Present Actions*

Increased fragmentation of shrub steppe habitats due to agricultural conversion and residential development has resulted in the disappearance of shrub steppe mammals such as white-tailed jackrabbits and the Washington ground squirrel, which has in turn contributed to dietary shifts of ferruginous hawks to smaller mammals, insects, and gulls (Dechant et al. 1999). Such changes in prey as well as increased distance to foraging ranges may have reduced hawk survival (Dechant et al. 1999) and caused a decline in the species.

The current Baker RMP (BLM 1989) manages upland vegetation to be in a mid- to late-seral age class, which has provided open expanses of sagebrush that support adequate rodent populations, and which have been beneficial to ferruginous hawk habitat (Schmutz 1995). While the current Baker RMP (BLM 1989) focused on creating nesting platforms for this species, many platforms have been removed because they were erected close to sage-grouse lek sites. This does not seem to adversely affect population numbers.

Juniper and conifer encroachment, which has been caused mainly by past and ongoing successful fire suppression (Miller and Wigand 1994), is one of the primary threats to ferruginous hawk

habitat (Schmutz 1995). While helpful in maintaining suitable habitat, ongoing juniper management within the Decision Area occurs at the project level instead of a landscape level, which is insufficient in terms of reducing habitat fragmentation for ferruginous hawks. Controlling juniper encroachment on adjacent private lands has also helped to reduce fragmentation, although it is also insufficient.

Reasonably Foreseeable Future Actions

While western juniper reductions would likely continue to occur across the Planning Area, juniper would likely continue to expand and fragment ferruginous hawk habitat. Along with future fire suppression activities, climate change may also create favorable climate conditions for continued juniper expansion (Miller and Wigand 1994).

Future developments on public and adjacent lands, such as those for wind energy and utility corridors, would continue to fragment ferruginous hawk habitat. Specifically, wind developments that overlap ferruginous hawk habitat have the potential to cause direct long-term stress, displacement, and fragmentation to their area of use, as well as result in mortality of individual birds.

Summary of Impacts to Ferruginous Hawks under the No Action Alternative

Managing upland vegetation in a mid- to late-seral age class would continue to support adequate rodent populations due to sufficient vegetation for hiding cover, and would thus be beneficial to ferruginous hawk habitat (Schmutz 1995). Not adequately addressing the control or reduction of juniper at a landscape level would allow for further fragmentation of potential habitat. Not providing specific management protection for raptor habitat during preparation of resource activity plans would allow for continued exposure of ferruginous hawk habitat to stressors such as juniper encroachment and fragmentation. Making public lands available for ROWs, which includes wind energy developments, could result in direct long-term stress, displacement, and fragmentation. Designating and occupying all utility/transportation corridors identified by the Western Regional Corridor Study could displace hawks due to potential overlap with ferruginous hawk habitat, although the probability for this to occur would be low as developers would be encouraged to locate new facilities adjacent to existing facilities. Overall, impacts would be adverse, long-term, and moderate.

Cumulative Impacts to Ferruginous Hawks under the No Action Alternative

Taking into consideration the beneficial effects of modifying livestock grazing, managing sagebrush in a mid-seral canopy structure, locating new facilities adjacent to existing facilities, and the adverse effects of ground disturbing projects, and a lack of management for the restoration of sagebrush vegetative communities that has led to fragmentation of habitat would result in cumulative impacts that would be long-term, adverse, and moderate in magnitude.

Greater Sage-grouse

Past Actions and Present Actions

Fragmentation of sagebrush habitats has been cited as the primary cause of the decline of greater sage-grouse populations (USFWS 2010a). Greater sage-grouse are a landscape scale species, requiring large expanses of sagebrush to meet all seasonal habitat requirements (Connelly et al. 2000). The USFWS analyzed potential factors that may affect the habitat or range of the greater sage-grouse and determined that habitat loss and fragmentation resulting from wildfire, invasive plants species, energy development, and infrastructure development are the primary threats to the species (USFWS 2010). The negative effects of fragmentation on greater sage-grouse are diverse and include reduced lek (courtship site) persistence, lek attendance, winter habitat use, recruitment, yearling annual survival, and female nest-site choice. It has been estimated that sage-grouse habitat has been reduced by 44 percent from the species' historically occupied range (Stiver et al. 2006). Federal lands (primarily BLM lands) make up about 72 percent of the current total range of the species. While this means that federal land management agencies are primarily responsible for habitat management (Connelly et al. 2004), privately owned lands provide critical seasonal habitats (e.g. wintering and nesting) for many populations. In Oregon, sage-grouse population data has demonstrated an overall decline since the 1940s (Connelly et al. 2000; Hagen 2005).

On a mid-scale analytical level, the Planning Area has two sage-grouse subpopulations (i.e. Baker and East Central). The Baker subpopulation is a part of the Snake River Plain Management Zone and is separated geographically from other sage-grouse subpopulations by Lookout Mountain topography. The southern portion of the Decision Area contains the East Central sage-grouse subpopulation. The East Central subpopulation is a part of the Northern Basin Management Zone (Sriever et al. 2010). Lek counts indicate that the Baker subpopulation is stable to decreasing and the East Central subpopulation is stable to increasing (Nick Myatt ODFW pers. com. 2010). Radio telemetry data collected in 1993 and in 2009-2010 show no movement between the subpopulations. However, a small sample of wings analyzed by ODFW suggests that there is no significant genetic difference between the Baker and East Central subpopulations; indicating some degree of historic or current gene flow. For this analysis the BLM assumes there is no or very low movement between subpopulations. The Baker Resource Area manages 26 percent of the Baker subpopulation (132,769 of 510,623 acres) and less than 2 percent of the East Central subpopulation (53,497 of 2,901,476 acres).

The BLM analyzed the effects of past land management on sage-grouse habitat fragmentation using FRAGSTATS 3.3. Due to landownership patterns within the Planning Area, both public and private lands were included in the analysis for both the Baker and the East Central Oregon subpopulations. The results of subpopulation analysis shows that the habitat for the Baker subpopulation is 38 percent more fragmented than the East Central Oregon subpopulation (see Appendix 3.4). The main contributing factors influencing the level of fragmentation were the conversion of sagebrush communities into non-native annual grass for agricultural and livestock purposes, juniper expansion, roads, and utility corridors. In addition to greater fragmentation,

the Baker subpopulation has 20 percent higher edge density (.37 miles of edges /sq mile) and 5.7 times less interior area (510,623 acres) than the East Central Oregon subpopulation. Interior area is defined as the total area that is not affected by a non-sage-grouse habitat edge. Increased fragmentation and edge density, and fewer acres of interior area in the Baker subpopulation may partly explain the current population trend of stable to declining when compared to the East Central Oregon subpopulation, which is stable or increasing. Therefore, the BLM assumes that adverse effects due to past habitat fragmentation are greater in the Baker subpopulation (moderate to major, adverse) than in the East Central subpopulation (minor to moderate, adverse). The Natural Resource Conservation Service (NRCS) has worked with private land owners resulting in approximately 9,000 acres of juniper control in Baker County (personal comm., Travis Bloomer, 2011). The juniper reduction treatments were located within the Baker subpopulation. This reduction in juniper encroachment would reduce the probability of converting native sagebrush community to non-native annual grass, and thereby reduce future sage-grouse habitat fragmentation, resulting in minor beneficial effects to the Baker subpopulation.

Livestock grazing has resulted in heavy utilization on riparian areas within the Baker and East Central Oregon subpopulations. Specifically, there is no minimum allowable riparian stubble height or maximum utilization targets set for both these subpopulations. This level of riparian utilization has been shown to reduce sage-grouse use (Beck 2000). Therefore, the adverse effect of not regulating riparian stubble height or utilization would have a moderate adverse effect to sage-grouse. Livestock grazing has also resulted in reduced late-seral native grass vigor by not tailoring grazing systems to plant growth stages (Brewer et al. 2007). This reduces plant vigor and increases the probability of converting a native sagebrush community to non-native annual grass or lower stature Sandberg bluegrass, both of which are of too poor quality for sage-grouse nesting habitat (Connelly et al. 2000). The BLM expects that these grazing systems are having a minor to moderate, adverse effect to sage-grouse. However, within the Decision Area, the Pritchard Creek and portions of the Burnt River Geographical Unit (GU), constituting approximately 51,315 acres or 6 percent of identified key habitat, is meeting stubble height for riparian areas in sage-grouse habitat. The BLM expects that this would have a minor beneficial effect to sage-grouse use.

Fences have also been identified as a potential threat to sage-grouse (Connelly et al. 2000). Current scientific recommendations (Christiansen 2009; Sage-grouse Conservation 2003) suggest that the risk of adverse effect is reduced if fences are at least 0.6 miles from a lek. Bureau of Land Management analysis shows that there are a total of 124 miles of fence within 0.6 miles of a lek, of which 54.3 miles are located on private land and 69.7 miles are located on public lands. These fences are likely having minor adverse effects to sage-grouse. To reduce the effects of these fences, the BLM has worked with ODFW to place fence diverts on 3 miles of fence in hopes of reducing sage-grouse collisions with fences. Much of the effect of utilizing fence dividers is in the preliminary stages of research (Christiansen 2009).

Utility corridors have also been identified as a potential threat to sage-grouse. State strategy (2005) recommends that transmission corridors should be placed at least 2 miles away from sage-grouse leks. Past land management on both public and private lands within the Planning Area has resulted in 22 miles of utility corridors within key sage-grouse habitat. Using a depth of edge effect of 50 feet on either side of utility corridors results in 133 acres of habitat loss to sage-grouse habitat (Mafla et al. 2008). Similarly, Holloran and Anderson (2005) have concluded that to protect and maintain sage-grouse populations, land managers should minimize or halt actions that reduce suitability of nesting habitats within 3.1 miles of a lek, which includes utility corridors. There are 37 miles of utility corridors within this area, which equates to 224 acres. Therefore, the adverse effect to sage-grouse habitat due to utility corridor would be between 266-448 acres, which would result in moderate adverse effect to sage-grouse habitat. However, utility corridor placement has a greater affect than the land that is directly impacted from utility construction. For example, because a utility corridor is placed outside of sage-grouse lek buffers, it does not mean that the utility corridor cannot potentially fragment more sage-grouse habitat.

Holloran and Anderson (2005) conclude that sage-grouse nest density is greatest within 3.1 miles from a lek. Past management has resulted in 1,514 miles of roads on private and public lands within 3.1 miles from a sage-grouse lek. Using a depth of edge influence of 50 feet on either side of these roads equates to 18,351 acres adversely affected, which has resulted in moderate adverse effect to sage-grouse.

Past private land management has resulted in native vegetation along the Powder River, which is in the Baker subpopulation, being converted to flood agriculture. Flood agriculture has been identified as having the highest risk for the spread of West Nile virus (Doherty 2007). However, no study has been conducted to determine the effects of West Nile sage-grouse in the Baker subpopulation. Based on Doherty (2007), it is expected that West Nile would cause a negligible to minor, adverse effect to sage-grouse as a result of flood agriculture. Stock water troughs and small (less than a one half of an acre) within both subpopulations are not expected to have a measurable increase in adverse effect on West Nile virus infection rates within either of the subpopulations (Doherty 2007).

Reasonably Foreseeable Future Actions

There is currently one proposed grazing permit renewal project, which is located in the East Central sage-grouse subpopulation. This project is located in the Pedro Mountain (GU) and covers the Decision Area within the East Central Oregon sage-grouse subpopulation. Proposed livestock grazing management has included setting upland forage utilization based on sagebrush obligate species, nesting screening cover needs, restricting riparian forage use to a minimum of 3-4 inches, and developing grazing systems that maintain high native grass vigor. These proposed changes to livestock management would increase the availability of food forbs, reduce the threat non-native annual grass invasion, and maintain enough grass production to conceal sage-grouse nests and broods (Beck et al. 2000). Therefore, because of these improvements, livestock permit renewal would have a more beneficial effect to sage-grouse compared to current

livestock management. However, the magnitude of effect would be minor due to the limited area (less than 2 percent) that the Baker FO manages within the East Central Oregon sage-grouse subpopulation.

The BLM and NRCS currently have proposals for juniper reduction. The NRCS plans on treating 3,000 additional acres of juniper on private lands within the Baker subpopulation and the BLM plans on treating between 1,000 to 2,000 acres of juniper on public lands within the East Central subpopulation. This level of juniper reduction would have minor beneficial effects to sage-grouse habitat.

Based on current trends, public demand for wind energy will probably increase in the future and it is assumed that a portion of these developments will be constructed on lands within the Decision Area. Currently, there are 5 proposed wind testing projects within the Decision Area. At this time, it is unclear if any of these proposals will result in a wind energy development site; however, the opportunity and trend exist. All of the proposed wind testing projects except one are located in the East Central Oregon subpopulation. The one proposal within the Baker subpopulation is located on the southernmost edge. Because of the location of the proposal, it is not expected to increase identified key habitat fragmentation. Therefore, the adverse effect to sage-grouse would be minor to moderate. Similarly, the proposed wind testing projects in the East Central subpopulation are located on the northern edge of the subpopulation. However, due to the number of projects within the East Central subpopulation, the effects would range from minor to major depending on number of projects developed.

There is currently one utility corridor project proposed that may have adverse effects to the Baker sage-grouse subpopulation. The corridor runs between Boardman to Hemingway and three proposed alternatives would affect the Baker subpopulation with varying degrees of adverse effects. One proposed alternative would run along the northernmost periphery of the Baker subpopulation. To further reduce adverse effects, this alternative would stay at least 2 miles from any lek, which would result in to minor to moderate, adverse effects to sage-grouse. Two other alternatives would split the subpopulation into two large pieces; however, the corridor would still be at least two miles from the nearest lek. Splitting the Baker sage-grouse population would increase the amount of fragmentation more than the first proposed alternative, which would be run on the outside of the population. Therefore, the proposed alternatives that splits the sage-grouse population in half would have moderate to major, adverse effects to sage-grouse populations.

Mining projects are expected to increase within the Decision Area due to high mineral prices. Currently, there are 38 new mining proposals within the Decision Area, which may disturb up to 300 acres of mountain and Wyoming big sagebrush. In general, current mining management requires the disturbed area to be reclaimed. Therefore, long-term impacts from mining on sage-grouse habitat would range from negligible to minor. However, long-term, adverse effects could potentially increase in Wyoming big sagebrush habitats where reclamation has a lower probability of being successful. The magnitude of effect would be dependent on the acreage of

mining reclamation success. Short-term, localized, moderate, adverse effects are expected prior to reclamation and/or restoration. However, it is assumed after reclamation that the magnitude of adverse localized impacts would be reduced to minor.

Summary of Past, Present, and Foreseeable Actions

There have been many past actions that have adversely affected sage-grouse habitat. Prior to federal rangeland management, resource values management actions focused on economic production. As a result, wildlife habitat for sage-grouse was not a management consideration. Lack of management consideration for wildlife habitat has led to fragmentation of habitat not only for sage-grouse, but for many sagebrush obligate species. Past actions and lack of management consideration for sage-grouse habitat needs have led to long-term, adverse actions that are moderate to major in magnitude. Furthermore, there will likely be future actions that have a combination of beneficial and adverse effects for sage-grouse habitat. For example, proposed juniper reduction and livestock grazing adjustments will be beneficial. These impacts would likely range from minor to moderate in magnitude because they would restore or adjust livestock AUM use, which would likely have a result of range health meeting or moving towards standards. However, future actions, such as wind development due to an increasing demand for energy and mining, could have adverse localized effects ranging from minor to major depending on project placement because sage-grouse habitat could be impacted.

Summary of Impacts to Greater Sage-grouse under the No Action Alternative

The No Action Alternative does not specifically address sage-grouse or sagebrush obligate species needs. In general, the No Action Alternative lacks an emphasis for restoring of Wyoming big sagebrush habitats and has no requirement to reclaim Wyoming big sagebrush loss, which would allow for further degradation of sage-grouse habitat. On the other hand, upland vegetation would continue to be managed for a mid to late-seral age class, which would provide sage-grouse wintering habitat. The No Action Alternative would also leave between 40 to 60 percent of perennial grasses across rangelands, which may or may not be adequate for sage-grouse habitat needs. The No Action Alternative would also help to restore or maintain riparian habitat through modification of grazing systems, which would indirectly benefit sage-grouse nesting and brooding habitat by leaving streamside vegetation (forbs and grasses). Livestock grazing would also be excluded in areas where use was inconsistent with riparian management. However, the No Action Alternative does not propose management actions that would restore stream health, which would improve bank stability and increase the vigor of riparian vegetation that is important to sage-grouse during various life-cycle stages like nesting and brooding (Crawford et al. 2004). The No Action Alternative would also not specifically manage for western juniper encroachment, which could continue to encroach and fragment and reduce sage-grouse home ranges.

Encouraging and facilitating the development of public land mineral resources by private industry could cause long-term displacement of greater sage-grouse from preferred use areas or destroy localized sage-grouse habitat. Recreation management under the No Action Alternative

would allow for the continued harassment of sage-grouse by recreationists, which could cause displacement and weaken their populations. The lack of management direction for decommissioning roads would lead to continued habitat fragmentation. Making public lands available for ROWs, including future wind energy developments, would lead to reductions and further fragmentation of key habitat areas. Maintaining ACEC designations would conserve a limited amount of sage-grouse habitat.

Due to the above-mentioned factors that would negatively impact sage-grouse habitat and the lack of direct management to address restoration and/or protection of habitat, overall impacts under the No Action Alternative would be adverse, long-term, and minor for the sage-grouse habitat located within the Decision Area. In the terms as a species as a whole, if habitat for sage-grouse is lacking or impacted negatively, it could negatively affect the populations the populations numbers and distribution and, more specifically, the sustainability of the Baker subpopulation.

Cumulative Impacts to Greater Sage-grouse under the No Action

Taking into consideration the beneficial effects of modifying livestock grazing, managing sagebrush in a mid-seral canopy structure, adopting the State sage-grouse strategy, locating new facilities adjacent to existing facilities and the adverse effects of ground disturbing projects, a lack of management for energy development, and a lack of management for the restoration of sagebrush vegetative communities that has led to fragmentation of habitat would result in cumulative impacts that would be cumulative impacts long-term, adverse, and minor to moderate in magnitude.

Bald and Golden Eagles

Past Actions and Present Actions

The bald eagle was a federally threatened species under the ESA when the current Baker RMP (BLM 1989) was signed, but was delisted from the ESA in 2007 (USFWS 2007). Currently, bald and golden eagles are protected by the Bald and Golden Eagle Protection Act of 1962, the Migratory Bird Treaty Act of 1918, and as a bureau special status species. The BLM has followed and continues to follow federal policy to mitigate any impacts to eagle populations, which had benefited eagles by prohibiting the direct “taking” of eagles.

In 1985, the Wallowa-Whitman National Forest issued a Unity Reservoir BEMP for the BEMA. The purpose of this plan was to conserve bald eagle habitat in and around the Unity Reservoir in Baker County, Oregon. The current Baker RMP (BLM 1989) also designated areas around the Unity reservoir as being an ACEC. The Unity Bald Eagle ACEC, consisting of 356 acres of BLM and 434 acres of USFS lands on the North Fork of Burnt River, would be managed in accordance with the ESA and Pacific States BEMP (USFWS 1986; USFS 1885). Even though the bald eagle was delisted in 2007, the continued management of the Unity Bald Eagle ACEC,

in conjunction with USFS at Unity Reservoir (USFS 1985), has benefited bald eagle habitat in the area.

Reasonably Foreseeable Future Actions

It is reasonable to assume that the USFS Unity Reservoir BEMA would continue to be maintained, which would protect nesting, roosting, and foraging habitat for bald eagles over the life of the RMP even if the ACEC would not be carried forward under Alternative 1 and 2. In addition, population recovery of eagles would likely continue and expand on adjacent private lands. The BLM will also comply with all federal regulations for habitat conservation and follow IM 2010-156, which sets out management guidance for golden eagles with regard to authorization of renewable energy projects. In addition to IM 2010-156, bald and golden eagles are federally protected under the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918. Both Acts help protect bald and golden eagles by setting criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, export or import, at any time of any manner, and bald eagle [or any golden eagle], alive or dead, or any part, nest or egg thereof”. The Act defines “take” as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The BLM will also continue to work with other federal, state, and tribal governments, as well as willing private landowners whenever possible to reduce fragmentation and expand habitat connectivity for eagles.

Summary of Impacts to Bald and Golden Eagles under the No Action Alternative

The No Action Alternative would continue the implementation of the cooperative BEMP for Unity Reservoir Nesting Bald Eagles (USFS 1985), which would be beneficial for the bald eagles found in the Unity ACEC BEMA. Eagles outside of the BEMA would not receive such intense protection and could experience indirect adverse impacts to their nesting, roosting, and foraging sites due to direct human disturbance. Emphasizing recreation opportunities within the Decision Area would increase the likelihood of negative impacts. In addition, while WSAs, WSRs, and ACECs would be identified as avoidance or exclusion areas, most public lands in the Decision Area would remain available for utility/transportation corridors and local ROWs, which can fragment bald eagle use areas and result in direct adverse impacts due to birds colliding with overhead wires.

Cumulative Impacts to Bald and Golden Eagles under the No Action Alternative

Overall, taking in consideration the federal regulations and policies for managing eagle habitat and avoiding the taking of eagles and habitat on BLM lands and adjoining USFS lands, cumulative impacts to eagle habitat would be beneficial, long-term, and moderate.

Lewis's Woodpecker*Past Actions and Present Actions*

Management issues and conservation strategies were identified for populations of Lewis's woodpeckers in the Interior Columbia Basin (Wisdom et al. 2000). This study showed that the habitat for the species has been dwindling due to declines in shrub understories, old growth ponderosa pine forests, and mature cottonwood stands. Past fire suppression efforts have led to the replacement of ponderosa pine forests by Douglas-fir and leads to denser, closed-canopy forest stands (Saab and Dudley 1998), which are not suitable for woodpecker habitat. Adjacent USFS lands have had stand replacement fires that have provided additional Lewis's woodpecker habitat. Timber-related activities on private lands adjacent to public lands have focused more on timber yields, which has resulted in past treatments that may have impacted occupied woodpecker habitat because mitigation for this species was seldom enforced. Drought and overgrazing has also reduced the quality of woodpecker habitat, especially cottonwoods in arid regions. Such actions, as well as beaver activity, water augmentation, and settlement have greatly reduced the number of cottonwood galleries in the Decision Area.

Reasonably Foreseeable Future Actions

Because there are limited areas in the Decision Area that have been affected by stand-replacing fires and the greatest density of nesting birds has been recorded in habitats created by stand-replacing wildfire (Abele et al. 2004), the predicted increased fire intervals due to climate change might be beneficial to the species. It is also reasonable to assume that the BLM would manage for open canopy forests and provide some adequate habitat for Lewis' woodpeckers. Ongoing snag recruitment and retention undertaken under the current Baker RMP (BLM 1989) has provided some nesting opportunities.

Summary of Impacts for Lewis's Woodpeckers under the No Action Alternative

Using prescribed burning and managing wildland fires to achieve resource objectives, including maintaining old-growth forests, and protecting large ponderosa pine and cottonwood trees in overstocked stands during treatment efforts, would improve Lewis's woodpecker habitat. Overall, beneficial impacts would be long-term and minor.

Cumulative Impacts to Lewis's Woodpeckers under the No Action Alternative

Taking into consideration the beneficial effects of maintaining dry site old growth by promoting and restoring the historic fire cycle through prescribed burning, protecting large ponderosa and cottonwood trees in overstocked stands, coupled with the adverse effects of timber management that are not conducive to Lewis woodpecker habitat needs, and fire suppression that has changed fire regimes and led to stand-replacing fires, the cumulative impacts would be long-term, beneficial, and minor.

White-headed Woodpecker*Past and Present Actions*

The white-headed woodpecker is strongly associated with open old-growth ponderosa pine/Douglas-fir forests that have large mature snags that are over 20 inches in diameter (Fredrick and Moore 1991; Groves et al. 1997; Wisdom et al. 2000). Forests of mature and old growth ponderosa pine are also important to white-headed woodpeckers due their substantial seed crop. Such forests are uncommon within the Decision Area due to past timber harvesting and fire suppression. Management under the current Baker RMP (BLM 1989) involves retaining mature ponderosa with a diameter of 23 inches or above and uses fire as a management tool. Such activities have retained some remaining suitable habitat for white-headed woodpeckers.

Reasonably Foreseeable Future Actions

It is reasonable to assume that ponderosa pine in the Decision Area over 23 inches in diameter would continue to be protected in the future, thus providing habitat for the white-headed woodpecker. Most suitable habitat is located on adjacent USFS lands, which would also protect old-growth ponderosa pine with a 21-inch or greater diameter. Although there are no diameter limits on private lands, which creates potential for habitat loss, stewardship programs in place for private landowners could benefit woodpeckers. Even without cooperation from private landowners, management of USFS and BLM lands would provide enough habitat for the white-headed woodpecker within the Planning Area.

Summary of Impacts to White-headed Woodpeckers under the No Action Alternative

The No Action Alternative would benefit white-headed woodpecker habitat by maintaining snags for cavity dependant wildlife. However, not setting minimum snag diameters and snag ratios may not preserve enough snags to support adequate white-headed woodpecker habitat. Emphasizing the maintenance of dry site old growth by restoring the historic fire cycle through prescribed burning and managing wildland fires to achieve resource objectives would benefit woodpecker habitat. Overall, impacts would be beneficial, long-term, and minor.

Cumulative Impacts to White-headed Woodpeckers under the No Action Alternative

Taking into consideration the beneficial effects of maintaining dry site old growth by promoting and restoring the historic fire cycle through prescribed burning, protecting large ponderosa and cottonwood trees in overstocked stands, coupled with the adverse effects of timber management that are not conducive to Lewis woodpecker habitat needs, and fire suppression that has changed fire regimes and led to stand-replacing fires, the cumulative impacts would be long-term, beneficial, and minor.

Columbia Spotted Frog

Past Actions and Present Actions

Columbia spotted frogs are sensitive to actions that disrupt or fragment wetland habitats (Adams et al. 2009). Under the current Baker RMP (BLM 1989), many projects removed, moved, and stored water for other resource use that reduced, augmented, or destroyed potential frog habitat, and have been especially detrimental during drought years (Patla and Keinath 2005). The byproducts of mining in the form of tailings and heavy metal pollution in waterways are detrimental to the species (Adams et al. 2009). On the other hand, past mining activities have also resulted in some minor benefits due to the creation of settling ponds used in mining within the Mormon Basin Valley (Bull 2005). Similarly, permanent ponds created to provide water for livestock or wildlife, irrigation, and ponds created for aesthetic purposes have benefited frogs by creating additional habitats (Bull 2005). In addition, the implementation of watershed management plans that continue the cooperation with state and federal agencies to maintain and improve water quality has been beneficial to frogs by maximizing habitat availability.

Columbia spotted frogs are directly impacted by mortality from motorized traffic along roads, especially during dispersion and migration. Indirectly, roads impact habitat through degradation (runoff and sedimentation) and fragmentation (Funk et al. 2005; Patla and Keinath 2005).

Livestock grazing directly impacts Columbia spotted frog habitat both adversely by the trampling of frogs (at all life stages) and wetland habitat degradation (Bull 2005; Patla and Keinath 2005), and beneficially by removing vegetation, creating openings, and increasing solar radiation. These changes could increase water temperatures and provide areas for amphibians to bask and forage (Bull and Hayes 2000). Management would restore or maintain riparian habitat through modification of grazing systems, which would directly benefit spotted frog habitat because this management action would help leave some streamside/side-channel vegetation. Other activities that have adversely impacted Columbia spotted frog habitat are the use of retardant on fire perimeters, fire retardant contamination in wetland/frog habitat, and the destruction and fragmentation of habitat through bulldozed lines and roads (Pilliod et. al 2003; Patla and Kenaith 2005).

Columbia spotted frogs have experienced population declines and fragmented habitats on private and state lands due to the direct removal of habitat. For example, many mining sites throughout the Planning Area (e.g., Burt River Canyon/Mormon Basin) have augmented or reduced water, which can influence dispersal of frog populations.

Reasonably Foreseeable Future Actions

Mining extraction and exploration is expected to continue on public and private lands, which may affect available habitats for Columbia spotted frogs. Fire suppression techniques would generally be more considerate of habitat needs of wildlife species like the Columbia spotted frog by incorporating greater retardant buffers and using Resource Advisors, who would help reduce

adverse effects to frog habitat. Development of additional roads would continue to fragment habitat. Further invasions by non-native competitors (e.g. American bullfrogs) in spotted frog habitat could be devastating to the species.

Summary of Impacts to Columbia spotted frog under the No Action Alternative

Not adequately addressing invasive animal species under the No Action Alternative, particularly non-native fauna (e.g. American bullfrog), would be devastating to the species due to competition for food and space, as well as direct predation. Managing to improve water quality and restoring or maintaining riparian habitat through modification of grazing systems would benefit spotted frog habitat. On the other hand, not specifying a minimum stubble height would make it uncertain as to how much riparian vegetation would remain, and whether it would be sufficient for frog habitat. Adverse impacts from livestock grazing would be due to direct mortality and reduction in habit quality, while some beneficial impacts would be due to creating openings in vegetation to facilitate basking, as well as creating habitat through the development of water impoundments (Funk et al. 2005). Mining projects in Burnt River Canyon can negatively impact localized populations of Columbia spotted frogs, while adjustments in the location or timing of saleable mineral extraction sites would minimize adverse impacts. The creation of dredge or settling ponds can have beneficial impacts. Minimal reductions in road densities would keep frog habitat fragmented. Overall, impacts under the No Action Alternative would be long-term, adverse, and minor in magnitude.

Cumulative Impacts to Columbia Spotted Frog under the No Action Alternative

Taking into consideration the beneficial effects in some instances of livestock grazing, the creation of pools through mining activity, restoration of riparian areas, coupled with the adverse impacts of introduced non-native fauna (bullfrogs), the use of retardant, improper livestock management, some historic mining activity that has reduced habitat health, and minimal road densities that have been decommissioned and further fragment habitat, the cumulative impacts would be adverse, long-term, and minor in magnitude.

Alternative 1

Summary of Impacts to Bald and Golden Eagles under Alternative 1

Alternative 1 would not implement the cooperative BEMP for Unity Reservoir Nesting Bald Eagles (USFS 1985). However, the BLM will also comply with all federal regulations for habitat and population conservation (e.g. Bland and Golden Eagle Protection Act of 1940; Migratory Bird Treaty Act if 1918) and follow IM 2010-156.

Cumulative Impacts to Bald and Golden Eagles under Alternative 1

Although the Unity ACEC for bald eagles provides additional habitat management for bald eagles, under Alternative 1 this would not be carried forward. However, bald eagle habitat and

Unity Reservoir would still be protected because the BLM was signatory to the BEMA for Unity Reservoir. Moreover, bald and golden eagles would continue to be protected under federal law and, therefore, cumulative impacts to eagle habitat would be beneficial, long-term, and minor to moderate.

Pygmy Rabbit

Summary of Impacts to Pygmy Rabbit under Alternative 1

Compared to the No Action Alternative, Alternative 1 provides more management actions that are consistent with life histories of sagebrush-dependent wildlife species like the pygmy rabbit. This includes providing direction for maintaining a landscape mosaic of sagebrush cover, perennial grass, and forb production, which is consistent with Rangeland Standards and Guides (BLM 1997). Alternative 1 would also provide protection measures for biotic crusts, which would benefit pygmy rabbits. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Pygmy Rabbit under Alternative 1

Taking into consideration the beneficial effects of adding more restoration measures for sagebrush vegetative communities, management would be consistent with Rangeland Standards and Guides (BLM 1997). Adding protection measures for biotic crusts that improves soil characteristics would result in cumulative impacts that would be beneficial, long-term, and moderate.

Gray Wolf

Summary of Impacts to Gray Wolf under Alternative 1

Alternative 1 would provide greater protection measures for wolf habitat when compared to the No Action Alternative. This includes reducing road densities, which would reduce human disturbance, habitat fragmentation, and habitat loss. In addition, including management actions for relocation and translocation of wildlife species, including wolves, would also benefit the species in the Decision Area. Overall, cumulative impacts for Alternative 1 would be long-term, beneficial, and moderate in magnitude.

Cumulative Impacts to Gray Wolf under Alternative 1

The cumulative impacts to wolves under Alternative 1 include the beneficial effects due to reduced habitat fragmentation within the Decision Area, as well as future USFS and private land management. Such impacts would be beneficial and moderate.

Townsend's Big-eared Bat and Fringed Myotis*Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 1*

Under Alternative 1, using aggressive restoration methods to improve riparian habitat conditions, reducing fuel loads, implementing juniper removal projects, enhancing sagebrush obligate wildlife habitat and ecosystem function, and maintaining and perpetuating old growth stands would improve foraging habitat for bats. Also, retaining snags and green trees would provide them with roost sites. Impacts from developments and other surface-disturbing activities would be reduced due to more acres in exclusion and avoidance areas, as well as increased ACEC acres. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 1

Taking into consideration the beneficial effects of adding more restoration measures for bat habitat and reducing surface disturbing activities, the cumulative impacts would be beneficial, long-term, and moderate.

White-tailed Jackrabbit*Summary of Impacts to White-tailed Jackrabbit under Alternative 1*

Compared to the No Action Alternative, Alternative 1 provides more management actions that are consistent with life histories of sagebrush-dependent wildlife species like the white-tailed jackrabbit. This includes providing direction for maintaining a landscape mosaic of sagebrush cover, perennial grass, and forb production, which is consistent with Rangeland Standards and Guides (BLM 1997). Overall, impacts under Alternative 1 would be beneficial, long-term, and moderate.

Cumulative Impacts to White-tailed Jackrabbit under Alternative 1

Taking into consideration the beneficial effects of adding a stubble height requirement for livestock utilization, adding more restoration projects for sagebrush vegetative communities would cumulatively lead to beneficial, long-term, and moderate impacts.

Washington Ground Squirrel*Summary of Impacts to Washington Ground Squirrel under Alternative 1*

Under Alternative 1, gains would be made in increased perennial grass and biotic crust cover, leading to reductions in bare ground, which would have a moderate probability of supporting a viable population of Washington ground squirrels by increasing soil stability for burrowing activities. Furthermore, biotic crust should improve with livestock management. Overall impacts under Alternative 1 would be beneficial, long-term, and moderate.

Cumulative Impacts to Washington Ground Squirrel under Alternative 1

The overall cumulative impacts, which take into consideration beneficial effects due to developing specialized livestock grazing systems, managing measures for biotic crusts, and mitigations for energy development and ROWs, would be beneficial, long-term, and moderate.

Western Burrowing Owl*Summary of Impacts to Western Burrowing Owl under Alternative 1*

Compared to the No Action Alternative, Alternative 1 would provide greater protection to Western burrowing owl habitat by managing more aggressively for soil stability, including providing specific protection of biotic crusts. In addition, Wyoming big sagebrush canopy cover would be managed with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function, which would necessitate changes in livestock use, if such use were found to adversely affect burrowing owl habitat. Exclusion areas would overlap some suitable burrowing owl habitat and thus directly protect important den and nesting areas, as well as reduce habitat fragmentation. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Western Burrowing Owl under Alternative 1

Taking into consideration the beneficial effects of adding management measures for soil stability by increasing biotic crusts, adding management for restoring sagebrush vegetative communities, increasing restoration measures for sagebrush vegetative communities, and requiring specialized livestock grazing would result in beneficial, long-term, and moderate cumulative impacts.

Ferruginous Hawk*Summary of Impacts to Ferruginous Hawk under Alternative 1*

Under Alternative 1, managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function would create a more conducive hiding habitat for rodents, which would benefit ferruginous hawks. Juniper reductions proposed under Alternative 1 would reduce fragmentation of ferruginous hawk habitats, while retaining isolated mature juniper in prescribed treatment areas would protect potential nest sites.

Exclusion areas for energy development that directly overlap some ferruginous hawk habitat would protect important nesting and foraging areas and reduce fragmentation. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Ferruginous Hawk under Alternative 1

Taking into consideration the beneficial effects of adding more restoration measures for sagebrush\vegetative communities, this alternative would result in cumulative impacts that would be beneficial, long-term, and moderate.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 1*

Alternative 1 provides greater protection and restorative measures to sage-grouse habitat by protecting and restoring riparian areas, managing Wyoming big sagebrush canopy cover with an emphasis on enhancing sagebrush obligate wildlife habitat and ecosystem function, restoring Wyoming big sagebrush loss at a ratio of 2:1, addressing juniper encroachment, and aggressively treating noxious weeds and other invasive species. In addition, Alternative 1 would provide mitigation for habitat fragmentation by roads and habitat degradation by livestock.

Designating a 3-mile avoidance buffer around occupied/unoccupied sage-grouse lek sites would protect 80 percent of such leks and provide contiguous secure sage-grouse breeding habitat with minimal disturbance and harassment. Based on the 3-mile buffer, the probability of fragmentation to increase significantly is low. By protecting 80 percent of the land base throughout the Decision Area, it is likely that fragmentation as a whole would increase slightly. By considering other resources, such as sage-grouse habitat, and modifying recreational uses where they are inconsistent with such resources, would reduce the amount of human harassment to sage-grouse. Setting practical limitations for ROW corridors would minimize the area impacted because only the areas needed for project completion would be disturbed. Excluding all land use authorizations (including wind energy) from the proposed Virtue Flat ACEC and Oregon Trail ACEC would help to ensure key sage-grouse habitat is conserved, which would help sustain sage-grouse populations into the future. These and other similar actions proposed under Alternative 1 would have beneficial, long-term, moderate impacts on sage-grouse habitat.

Cumulative Impacts to Greater Sage-grouse under Alternative 1

Taking into consideration the beneficial effects of adding more restoration measures for sagebrush vegetative communities, specialized grazing rotations, lek buffers that would minimize resource conflicts, the proposed Virtue Flat ACEC, and the reduction of road fragmentation, this alternative would result in cumulative impacts that are long-term and moderate.

Lewis's Woodpecker*Summary of Impacts to Lewis's Woodpecker under Alternative 1*

Compared to the No Action Alternative, Alternative 1 would provide greater protection for Lewis's woodpecker habitat by perpetuating open stands of healthy, old growth, and by being

more aggressive with riparian restoration efforts. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Lewis's Woodpecker under Alternative 1

Taking into consideration the beneficial effects of timber management that would increase habitat by reducing and removing diseased trees, this alternative would result in cumulative impacts that would be beneficial, long-term, and moderate.

White-headed Woodpecker

Summary of Impacts to White-headed Woodpecker under Alternative 1

Compared to the No Action Alternative, Alternative 1 would provide greater protection for white-headed woodpecker habitat by sustaining large-diameter trees for food and nesting/roosting sources and setting minimum snag diameters, ratios, and placement specifications. Overall, impacts would be long-term, beneficial, and moderate.

Cumulative Impacts to White-headed Woodpecker under Alternative 1

Taking into consideration the beneficial effects of timber management that would increase habitat by reducing and removing diseased trees and management for their desired habitat needs, this alternative would result in cumulative impacts that would be beneficial, long-term, and moderate.

Columbia Spotted Frog

Summary of Impacts to Columbia Spotted Frog under Alternative 1

While protecting and restoring riparian areas would have short-term, negative impacts to frog habitats under Alternative 1, the resultant improvements to water quality would be beneficial. Decommissioning existing and avoiding the construction of new roads in riparian areas would maintain/increase habitat connectivity. Minimum stubble heights would provide greater hiding protection for Columbia spotted frog habitat (Howard and Munger 2003). Managing invasive terrestrial and aquatic plants and surveying for special status species prior to proposed mineral projects, with necessary mitigation needing to be implemented if such species are found, would further protect frog habitat. Overall, impacts under Alternative 1 would be long-term, beneficial, and moderate.

Cumulative Impacts to Columbia Spotted Frog under Alternative 1

Taking into consideration the beneficial effects of riparian restoration, the decommissioning of roads, setting maximum stubble height, and managing for invasive terrestrial species coupled with adverse effects of mining projects within spotted frog habitat, and short-term sedimentation

disturbance from decommissioning of roads, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate.

Alternative 2

Impacts same as under Alternative 1

- Impacts to Bald and Golden Eagles

Pygmy Rabbit

Summary of Impacts to Pygmy Rabbit under Alternative 2

Impacts would be similar to those discussed under Alternative 1, although not as extensive due to less aggressive restoration efforts for Wyoming big sagebrush habitats. Overall, the beneficial, long-term impacts would be reduced to a range of minor to moderate, compared to moderate under Alternative 1.

Cumulative Impacts to Pygmy Rabbit under Alternative 2

Taking into consideration the beneficial effect of following Rangeland Standards and Guides (BLM 1997), this alternative would result in cumulative impacts that would be long-term, beneficial, and minor to moderate.

Gray Wolf

Summary of Impacts to Gray Wolf under Alternative 2

Impacts would be similar to those described under Alternative 1, although beneficial impacts in the form of increasing habitat connectivity from reducing road densities within the Decision Area would be less extensive. This would reduce overall beneficial impacts from moderate (as identified under Alternative 1) to minor.

Cumulative Impacts to Gray Wolf under Alternative 2

Taking into consideration that the decommissioning of roads would not be as widespread, this alternative would result in cumulative impacts that would be long-term, beneficial, and minor to moderate.

Townsend's Big-eared Bat and Fringed Myotis

Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 2

Compared to Alternative 1, Alternative 2 would result in reduced amount of riparian restoration/conservation efforts, reduced emphasis on enhancing wildlife habitat connectivity for

sagebrush obligate species, increased livestock grazing, and reduced sagebrush cover. In addition, road density in Wyoming big sagebrush communities would be maintained or increased, and fewer acres of exclusion and avoidance areas would provide less benefits to bat habitat. Designating the least amount of ACEC acres among all alternatives would also reduce the amount of protection to bat habitats. In comparison, impacts would be more beneficial than the No Action Alternative, but less beneficial than Alternative 1. Overall impacts would be adverse, long-term, and range from minor to moderate.

Cumulative Impacts to Townsends Big-eared Bat and Fringed Myotis under Alternative 2

Overall, the cumulative impacts of management under this alternative, combined with past, present and reasonably foreseeable actions over the Planning Area, would be adverse, long-term, and minor to moderate in magnitude as there is a reduction in minimum stubble heights for livestock, a reduction in the amount of riparian restoration, and less ACECs that are designated under this alternative.

White-tailed Jackrabbit

Summary of Impacts to White-tailed jackrabbit under Alternative 2

Juniper reduction efforts and sagebrush cover reductions under Alternative 1 may result in a decline in white-tailed jackrabbit habitat quality and quantity, while fire management would be consistent with life histories of sagebrush-dependent wildlife species like the white-tailed jackrabbit. Overall, impacts would be beneficial, long-term, and minor.

Cumulative Impacts to White-tailed jackrabbit under Alternative 2

Taking into consideration the beneficial effect of following Rangeland Standards and Guides (BLM 1997) and fire management, this alternative would be consistent with the life-history needs of sagebrush dependant species and would result in cumulative impacts that would be long-term, beneficial, and minor.

Washington Ground Squirrel

Summary of Impacts to Washington Ground Squirrel under Alternative 2

Overall impacts to occupied Habitat would be the same as described under the No Action Alternative. In terms of unoccupied habitat, beneficial impacts from increases in perennial grass and biotic crust cover and reductions in bare ground would not be as extensive as identified under Alternative 1, and would probably not reach 11 percent, which is the amount needed support a viable squirrel population (Greene et al. 2009). Overall, however, long-term, beneficial impacts would remain in the range of minor to moderate.

Cumulative Impacts to Washington Ground Squirrel under Alternative 2

Taking into consideration the beneficial effect of following Rangeland Standards and Guides (BLM 1997), specialized grazing regimes, coupled with adverse effects of reduced stubble height and biotic crusts, this alternative would result in cumulative impacts that would be long-term, beneficial, and minor to moderate.

Western Burrowing Owl*Summary of Impacts to Western Burrowing Owl under Alternative 2*

Compared to Alternative 1, the less emphasis placed on increasing native plant diversity and vegetation structure under Alternative 2 would reduce beneficial effects to owl habitat. In addition, having the greatest number of acres considered open for energy development among the action alternatives and having the widest utility corridors that would be open to disturbances could adversely impact burrowing owl habitat. Overall, impacts would be adverse, long-term, and range from minor to moderate.

Cumulative Impacts to Western Burrowing Owl under Alternative 2

Taking into consideration the adverse impacts of reduced habitat restoration, reduced stubble heights for vegetation, and having the greatest acres that are to remain open for energy development, Alternative 2 would result in long-term, adverse cumulative impacts that range from minor to moderate.

Ferruginous Hawk*Summary of Impacts to Ferruginous Hawk under Alternative 2*

Compared to Alternative 1, placing less emphasis on increasing native plant diversity, vegetation structure, and habitat restoration during juniper reduction efforts, Alternative 2 would reduce beneficial impacts to ferruginous hawk habitat. Proposing the greatest area available for utility corridor construction/disturbance among all alternatives would result in greater disturbance to suitable ferruginous hawk habitat. Overall, impacts would be adverse, long-term, and minor.

Cumulative Impacts to Ferruginous Hawk under Alternative 2

Taking into consideration the adverse impacts of reduced habitat restoration, reduced stubble heights for vegetation, and having the greatest acres that are to remain open for energy development, Alternative would result in long-term, minor cumulative impacts.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 2*

Alternative 2 provides the least protective measures for conserving greater sage-grouse habitats among all the alternatives, including the No Action Alternative. This includes less protection and restoration measures for Wyoming big sagebrush, riparian health, and juniper control. It also calls for increased or maintained road densities within the Wyoming big sagebrush community, which would result in increased fragmentation and disturbance to sage-grouse habitat. The 2-mile avoidance buffer around occupied sage-grouse leks proposed under Alternative 2 would fall below policy guidelines for such buffers, with less than 80 percent of lek habitat protected, which would provide fewer contiguous and secure breeding habitats for sage-grouse. Alternative 2 has the greatest probability for increased fragmentation in comparison to Alternative 1, 3, 4, and the No Action Alternative because this alternative has the smallest area of sage-grouse habitat protection. As under the No Action Alternative, the proposed Virtue Flat and Denny Flat ACECs would not be designated and, therefore, would not provide extensive protection for important sage-grouse habitat. Overall, impacts would be adverse, long-term, and moderate in some localized areas, and even major in others.

Cumulative Impacts to Greater Sage-grouse under Alternative 2

Taking into consideration the adverse effects of reduced habitat restoration, reduced stubble heights for vegetation, having the greatest acres that are to remain open for energy development, and having a protection buffer that goes below policy standards, this alternative would result in cumulative impacts that would be long-term and range from moderate to major in localized areas.

Lewis's Woodpecker*Summary of Impacts to Lewis's Woodpecker under Alternative 2*

Compared to Alternative 1, riparian restoration would not be as extensive under Alternative 2, which would limit suitable habitat for Lewis's woodpecker. In addition, focusing on increasing timber yields and timber production (e.g., even-age forest structure) would not be conducive to the habitat needs of Lewis's woodpeckers. However, higher thinning ratios in ponderosa pine forests would be beneficial because it would create open, mature forest structures. Overall, impacts would be adverse, long-term, and minor.

White-headed Woodpecker*Summary of Impacts to White-headed Woodpecker under Alternative 2*

Impacts would be similar to those discussed in Alternative 1, except that beneficial impacts from forest management would be reduced due to focusing on increased timber yields instead of old-

growth stands, which would result in even-aged forest structures. Long-term, beneficial impacts would be reduced to a range of minor to moderate (compared to moderate beneficial impacts under Alternative 1).

Cumulative Impacts to White-headed Woodpecker under Alternative 2

Taking into consideration the beneficial effect of timber management would be less widespread because the focus is shifted to producing greater timber yields, this alternative would result in cumulative impacts that would be long-term, beneficial, and minor to moderate.

Columbia Spotted Frog

Summary of Impacts to Columbia Spotted Frog under Alternative 2

Compared to Alternative 1, Alternative 2 offers less protection measures for Columbia spotted frog habitat due to less extensive stream restoration, less emphasis on reducing road densities within the RMAs, the lowest riparian stubble heights among all action alternatives, and greater emphasis on road development and maintenance. Such actions would increase fragmentation of frog habitat. Overall, impacts would be adverse, long-term, and moderate.

Cumulative Impacts to Columbia Spotted Frog under Alternative 2

Taking into consideration the adverse effects of reduced habitat and riparian restoration, reduced stubble heights for vegetation, greater emphasis on commodity production, this alternative would result in cumulative impacts that would be long-term and moderate.

Alternative 3

Impacts same as under Alternative 1

- Impacts to White-tailed Jackrabbit
- Impacts to Washington Ground Squirrel
- Impacts to Western Burrowing Owl
- Impacts to Lewis's Woodpecker
- Impacts to White-headed Woodpecker

Impacts same as under Alternative 2

- Impacts to Wolves

Pygmy Rabbit

Under Alternative 3, impacts from managing vegetative committees and other management action leading to wildlife fragmentations and soil stabilization would be the same as those

described under Alternative 1. Impacts from restoration efforts would be the same as those described under Alternative 2. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Townsend's Big-eared Bat and Fringed Myotis

Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 3

Impacts would be similar to those described under Alternative 1, with the exception that adverse impacts from developments, such as mining and wind energy, would be more extensive due to fewer acres identified as exclusion and avoidance areas and ACECs. Beneficial impacts would be more intense than under the No Action and Alternative 2, but less intense compared to Alternative 1. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Cumulative Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 3

Taking into consideration the adverse effects of reduced habitat restoration and having the greatest acres that are to remain open for energy development and mining, this alternative would result in cumulative impacts that would be long-term and moderate.

Ferruginous hawk

Summary of Impacts to Ferruginous hawk under Alternative 3

Alternative 3 has a combination of the management actions found in Alternatives 1 and 2. Some management actions would be beneficial for hawk habitat, such as through the reduction of juniper encroachment and managing for a mid-seral vegetative community. Other management actions would be adverse. For example, there is a less restoration that occurs under Alternative 3 compared to Alternative 1. However, long-term impacts would be beneficial and minor.

Cumulative Impacts to Ferruginous hawk under Alternative 3

Taking into consideration the adverse effects of reduced habitat restoration, reduced stubble heights for vegetation, having the greatest number of acres that are to remain open for energy development coupled with beneficial effects of managing for a mid-seral canopy cover and reducing juniper encroachment, this alternative would result in cumulative impacts that would be long-term, beneficial and minor.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 3*

Impacts from the management of vegetative communities, noxious weeds, wildlife, livestock grazing, and transportation would be the same as those described under Alternative 1. Impacts from road improvements would be similar to Alternative 2, while the amount of proposed stream restoration would fall between Alternative 1 and 2. The use of 3-mile avoidance buffers on occupied leks would be more sufficient to protect sage-grouse habitat than the 2-mile buffers under Alternative 2 by protecting 80 percent of nesting habitat, albeit it is uncertain if 80 percent is adequate for sage-grouse habitat protection, the same as is found in the No Action Alternative (USFWS 2010a). Based on the 3-mile buffer the probability of fragmentation to increase significantly is low. By protecting 80 percent of the land base throughout the Decision Area, it is likely that fragmentation, as a whole would increase slightly.

Compared to Alternative 2, a smaller burned area would be evaluated under Alternative 3 to determine if sage-grouse habitat is being adversely affected by fire, which would provide greater protection to such habitat. Impacts for ROW development would be similar to those described under Alternative 1. Not designating Virtue Flat ACEC would result in the same adverse impacts identified under the No Action Alternative and Alternative 2. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Cumulative Impacts to Greater Sage-grouse under Alternative 3

Taking into consideration the beneficial effects of vegetation restoration, the treatment of noxious weeds, specialized grazing management, and the use of appropriated lek buffers on occupied leks coupled with adverse effects of not designating the Virtue Flat ACEC, and greater road designations, this alternative would result in cumulative impacts that would be beneficial, long-term, and minor.

Bald and Golden Eagles*Summary of Impacts to Bald and Golden Eagles under Alternative 3*

Beneficial impacts from following federal policies to mitigate impacts to eagles and implementing the bald eagle plan for Unity Reservoir would be more extensive compared to the No Action Alternative due to additional protection measures. Providing additional protection measures, such as protecting all known perches and nest trees within the Decision Area and protecting future potential nest and perch trees along the Snake River reservoirs, would expand the area of protection over the entire Decision Area. Mitigating recreational uses that are found to have detrimental impacts to eagle habitat would minimize the likelihood that recreation use would negatively affect habitat use. Considering additional protection measures prior to developing new or expanding utility/transportation corridors and ROW projects and restricting

hydropower developments would further protect bald and golden eagle habitats. Overall impacts under Alternative 1 would be beneficial, long-term, and moderate.

Cumulative Impacts to Bald and Golden Eagles under Alternative 3

Taking into consideration the beneficial effects of adding more protection measures to all known perch and nest trees, mitigating mining, recreation, and development resources if they were found to have detrimental impacts to eagle habitat, the cumulative impacts would be beneficial, long-term, and moderate in magnitude.

Columbia Spotted Frog

Summary of Impacts to Columbia Spotted Frog under Alternative 3

Beneficial impacts to spotted frog habitat under Alternative 3 would lie somewhere between those described for Alternative 1 and Alternative 2. Impacts from road improvements would be similar to Alternative 2, while impacts from the amount of proposed stream restoration would fall between Alternatives 1 and 2. Overall, impacts would be beneficial, long-term, and minor.

Cumulative Impacts to Columbia Spotted Frog under Alternative 3

Taking into consideration the adverse effects of reduced habitat restoration, reduced stubble heights for vegetation, the beneficial effects decommissioning roads, this alternative would result in cumulative impacts that would be long-term, beneficial and minor.

Alternative 4

Impacts Same as under Alternative 1

- Impacts to Pygmy Rabbit
- Impacts to Gray Wolf
- Impacts to Washington Ground Squirrel
- Impacts to Lewis's Woodpecker
- Impacts to White-headed Woodpecker

Impacts same as under Alternative 3

- Impacts to Bald and Golden Eagles

Townsend's Big-eared Bat and Fringed Myotis*Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 4*

Impacts would be similar to Alternative 1, although benefits to bat habitats would be more extensive due to more emphasis placed on the protection and restoration of riparian areas, upland vegetation, and old growth forest. In addition, more acres of bat habitat would be protected from developments, such as those associated with mining and wind energy, due to more acres within avoidance or exclusion areas and ACECs under Alternative 4. Beneficial, long-term impacts, however, would remain moderate.

Cumulative Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 4

Taking into consideration the beneficial effects of increased protection for vegetative communities and the additional protection for developments, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate.

White-tailed Jackrabbit*Summary of Impacts to White-tailed Jackrabbit under Alternative 4*

Impacts would be similar to those described under Alternative 1, with the exception that Alternative 4 would provide more benefits for white-tailed jackrabbit habitat by being more aggressive in reducing Western juniper encroachment. Overall, impacts would be beneficial, long-term, and range from moderate to major.

*Cumulative Impacts to White-tailed Jackrabbit under Alternative 4*Western Burrowing Owl*Summary of Impacts to Western Burrowing Owl under Alternative 4*

Impacts would be similar to those described under Alternative 1, except that they would be more expensive due to more acres that would be placed in exclusion and avoidance areas under Alternative 4. In addition, the prohibition of summer grazing and setting a light utilization level would result in the greatest increase in biological crust mats (Pozetti and McCune 2001), thereby being more beneficial for burrowing owl habitat. Overall, impacts would be long-term, beneficial, and range from moderate to major.

Cumulative Impacts to Western Burrowing Owl under Alternative 4

Taking into consideration the beneficial effects of increased protection for vegetative communities, setting a light utilization for stubble height, specialized grazing regimes, and additional protection for developments, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate to major.

Ferruginous Hawk*Summary of Impacts to Ferruginous Hawk under Alternative 4*

Impacts would be similar to those described under Alternative 1, except that they would be more extensive due to approximately 1,000 more acres of juniper reduction efforts per year and more acres placed within exclusion and avoidance areas under Alternative 4. Overall, impacts would be beneficial, long-term, and range from moderate to major.

Cumulative Impacts to Ferruginous Hawk under Alternative 4

Taking into consideration the beneficial effects of increased protection for vegetative communities, setting a light utilization for stubble height, specialized grazing regimes, reducing juniper encroachment, and additional protection for developments, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate to major.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 4*

Alternative 4 would provide greater protection measures for greater sage-grouse habitat than all previous alternatives discussed, including the No Action Alternative. This includes setting the initial riparian stubble height target at 6-8 inches for stream banks, which would ensure that there are adequate residual forbs and grasses left for brood-rearing (Fischer et al. 1996). Setting a light upland utilization target would leave stubble heights greater than 7 inches, which would be adequate for nesting and keeping sage-grouse nest predation at a low level (Sveum et al. 1996; Hagen et al. 2007; Connelly et al. 2000; Crawford et al. 2004). Reclaiming Wyoming big sagebrush at a ratio of 3:1 would increase the extent of habitat connectivity/reduced fragmentation compared to the previous alternatives discussed. Under Alternative 4, the reduction of road densities in native Wyoming big sagebrush communities would increase habitat connectivity. Managing to reduce juniper woodlands to approximate historic acreages would further reduce fragmentation of sage-grouse habitat. Based on an identified key habitat buffer, the probability of fragmentation to increase significantly is low. By protecting over 80 percent of the land base throughout the Decision Area, it is unlikely that fragmentation would increase beyond what has already been identified.

Excluding all land use authorizations within the Virtue and Denny Flat ACECs and having a 5-mile buffer around occupied/unoccupied sage-grouse lek sites outside the ACECs would protect over 80 percent of nesting habitat. Overall, impacts would be beneficial, long-term, and moderate to major.

Cumulative Impacts to Greater Sage-grouse under Alternative 4

Taking into consideration the beneficial effects of increased protection for vegetative communities, setting a light utilization for stubble height, specialized grazing regimes, increasing buffers around leks in comparison to Alternative 1, and taking into the account that protection buffers around leks may not be adopted, and that developments may be placed adjacent to key sage-grouse habitats, overall impacts would remain beneficial, long-term, and moderate.

Columbia Spotted Frog*Summary of Impacts to Columbia Spotted Frog under Alternative 4*

Compared to Alternative 1, the increased stream restoration, reduced monitoring length for streams, increased stubble height, and a lighter utilization target level provided under Alternative 4 would be more beneficial to spotted frog habitat over the long term. Impacts would be beneficial and range from moderate to major.

Cumulative Impacts to Columbia Spotted Frog under Alternative 4

Taking into consideration the beneficial effects of increased protection for riparian areas, setting a light utilization for stubble height, and specialized grazing regimes, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate to major.

Alternative 5Impacts same as under Alternative 1

- Impacts to Pygmy Rabbit
- Impacts to Gray Wolf
- Impacts to Washington Ground Squirrel

Impacts same as under Alternative 3

- Impacts to Bald and Golden Eagles

Impacts same as under Alternative 4

- Impacts to Western Burrowing Owl
- Impacts to Columbia Spotted Frog

Townsend's Big-eared Bat and Fringed Myotis*Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 5*

Impacts would be similar to those identified under Alternative 4, with a few differences. One difference is that beneficial impacts from grazing management would be more intense and widespread under Alternative 5 due to more restrictions on grazing and reduced AUMs and acres grazed. A second difference is that beneficial impacts from restrictions on ROW developments would be more widespread due to more acres within exclusion areas. Finally, the benefits from thinning old growth forests and stands with old growth characteristics would be greatly limited due to fewer acres that would be treated. Overall, impacts would be beneficial, long-term, and moderate.

Cumulative Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 5

Taking into consideration the beneficial effects of increased protection for vegetative communities restrictions on ROW developments, this alternative would result in cumulative impacts that would be long-term, beneficial, and moderate to major.

White-tailed Jackrabbit*Summary of Impacts to White-tailed Jackrabbit under Alternative 5*

Impacts would be similar to those described under Alternative 4, except that beneficial impacts would take longer to achieve due to less aggressive treatment efforts that are proposed under Alternative 5. In addition, jackrabbit habitat in the mountain big sagebrush community would degrade due to lack of juniper treatment and reduced fire suppression efforts would expose more areas to extreme fire events. Overall, the beneficial, long-term impacts would be reduced to a range of minor to moderate.

Cumulative Impacts to White-tailed Jackrabbit under Alternative 5

Taking into consideration that beneficial effects would take longer to achieve because of lack of management, and the adverse effects that lack of management would cause due to limited noxious weed treatments, this alternative would result in long-term, cumulative impacts that would be both beneficial and adverse, and range from minor to moderate.

Ferruginous Hawk

Impacts would be similar to those described under Alternative 4, except that beneficial impacts from juniper reduction efforts would not be as extensive. This would reduce long-term, beneficial impacts to moderate.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 5*

Impacts would be similar to Alternative 4, although they would be more extensive because this alternative provides a 5-mile buffer around all sage-grouse lek sites, versus limiting the 5-mile buffer to only occupied lek sites. This action would protect over 80 percent of leks within the Decision Area, over three times as many acres as would be protected under Alternative 4. Based on the 5-mile buffer, the probability of fragmentation to increase significantly is low. By protecting over 80 percent of the land base throughout the Decision Area, it is unlikely that fragmentation would increase beyond what has already been identified. This would increase overall impacts to beneficial, long-term, and moderate.

Cumulative Impacts to Greater Sage-grouse under Alternative 5

Taking into consideration the beneficial effects of increased lek buffers of 5 miles and the adverse effects of not being able to treat noxious weeds efficiently (which could have adverse effects on chick growth because noxious weeds may out-compete native nutritional forbs), this alternative would result in cumulative impacts that would be beneficial, long-term, and moderate.

Lewis's Woodpecker*Summary of Impacts to Lewis's Woodpecker under Alternative 5*

Impacts would be similar to those discussed under Alternative 1, except that the progression towards desired outcome would occur at a slower rate due to limited forest restoration activities. In fact, the less active management techniques proposed under Alternative 5 may not be sufficient to protect old-growth forests from catastrophic fire or insect/disease outbreaks, or reduce conifer encroachment into riparian habitats. Consequently, limiting management in forested ecosystems under Alternative 5 could reduce habitat for the Lewis's woodpecker. Overall, beneficial, long-term impacts would be reduced to minor.

Cumulative Impacts to Lewis's Woodpecker under Alternative 5

Taking into consideration the adverse effects of increased potential of catastrophic fires on BLM lands from fire/disease/insects, this alternative would result in long-term, adverse, moderate, cumulative impacts, and also in more pressure being put on private lands to produce timber yields.

White-headed Woodpecker

Impacts would be similar to those identified above for Lewis's woodpecker, except that overall long-term impacts would be adverse and minor.

Alternative 5a

All impacts under Alternative 5a would be the same as those described under Alternative 5, with the following exceptions.

Pygmy Rabbit*Summary of Impacts to Pygmy Rabbit under Alternative 5a*

If used properly, grazing can be used as a tool to maintain and promote perennial grass vigor by stimulating growth after forage consumption. Thus, while no grazing in the short term would help ensure residual forage for nesting and hiding cover for pygmy rabbits, it can also perpetuate the spread of noxious weeds throughout the Decision Area, which would adversely affect potential pygmy rabbit habitat. As a result, overall, long-term impacts would be adverse and range from minor to moderate.

Cumulative Impacts to Pygmy Rabbit under Alternative 5a

Taking into consideration the adverse effects of decreased protection of vegetative community classes on BLM lands because noxious weeds may be able to perpetuate throughout the Decision Area, this alternative would cause more pressure on private lands, resulting in cumulative impacts that would be minor to moderate and long-term.

Townsend's Big-eared Bat and Fringed Myotis*Summary of Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 5a*

Compared to Alternative 5, riparian areas and upland understory vegetation under Alternative 5a would recover and return to desired conditions at a faster rate. Overall, long-term impacts would remain beneficial and moderate.

Cumulative Impacts to Townsend's Big-eared Bat and Fringed Myotis under Alternative 5a

The removal of livestock grazing on BLM lands could lead to more grazing pressure on adjacent private lands within the Planning Area. This could result in adverse effects to foraging and roosting habitats for bats, and could adversely impact overall habitat connectivity for the species. Overall, long-term impacts with this cumulative impact would remain beneficial and moderate.

White-tailed Jackrabbit*Summary of Impacts to White-tailed Jackrabbit under Alternative 5a*

Although no grazing under Alternative 5a would help ensure residual forage for nesting and hiding cover for white-tailed jackrabbits, it may also perpetuate the spread of noxious weeds throughout the Decision Area. Overall, long-term impacts would remain beneficial and minor.

Cumulative Impacts to White-tailed Jackrabbit under Alternative 5a

The removal of livestock grazing on BLM lands could lead to more grazing pressure on adjacent private lands within the Planning Area. This could result in adverse effects to foraging and nesting habitats for jackrabbits, and could adversely impact overall habitat connectivity for the species. However, the overall, long-term impacts would remain beneficial and minor.

Western Burrowing Owl*Summary of Impacts to Western Burrowing Owl under Alternative 5a*

Since livestock use can physically open dense sagebrush stands, which would benefit burrowing owl habitat, having no livestock grazing in areas of dense sagebrush under Alternative 5 would eliminate this beneficial impact. This would reduce overall long-term, beneficial impacts to a range of minor to moderate, compared to moderate to major impacts under Alternative 5.

Cumulative Impacts to Western Burrowing Owl under Alternative 5a

The removal of livestock grazing on BLM lands could lead to more grazing pressure on adjacent private lands within the Planning Area. This could result in adverse effects to foraging and nesting habitats for burrowing owls, and could adversely impact overall habitat connectivity for the species. However, the overall, long-term impacts would remain beneficial and minor to moderate.

Greater Sage-grouse*Summary of Impacts to Greater Sage-grouse under Alternative 5a*

The lack of livestock grazing under Alternative 5 may lead to the buildup of grass litter, which would increase fire severity, frequency, and size (Davies et al. 2009). This, in turn, would reduce the amount of Wyoming big sagebrush and native grasses and forbs, as well as increase the spread of noxious weeds, all of which would be detrimental for sage-grouse habitat. This, however, would not change the intensity of overall beneficial impacts, which would remain moderate. Please see the Vegetation Section for a more in-depth explanation.

Cumulative Impacts to Greater Sage-grouse under Alternative 5a

The removal of livestock grazing on BLM lands could lead to more grazing pressure on adjacent private lands within the Planning Area. This could result in adverse effects to foraging and nesting habitats for sage-grouse on private lands and could adversely impact overall habitat connectivity for the species and perpetuating noxious weeds. Overall, long-term impacts with this cumulative impact would remain beneficial and moderate.

12. FIRE AND FUELS MANAGEMENT

This section describes potential impacts of the alternatives on fire and fuels management. The alternatives can affect hazardous fuels (fuel loading, fuel arrangement, fuel types) and the BLM's ability to manage them; tools for implementing fuels treatments; the potential for human-caused ignitions; response to unplanned fires; the use of wildland fire; threats to people, property, and sensitive resources from wildfire; fire regime/condition class (FRCC); and the risk of undesirable wildfire.

a. Indicators, Methods, and Assumptions***Fire and Fuels Management Indicators***

Indicators used to compare environmental consequences between alternatives include risk of uncharacteristic fire, treatment strategies/methods, opportunities to use unplanned natural ignitions to meet resource objectives, use of mechanized equipment for fire suppression and fuels management, amount of prescribed fire or suppression, and potential for human-caused ignitions. These are discussed below:

- **Risk of uncharacteristic fire from vegetative structure and/or fuel loading.** Fire is a natural process, necessary for many ecological processes and ecosystem functioning. Exclusion of fire may result in continued accumulation of fuel (live and dead vegetation), leading to fires with uncharacteristic behavior and effects. Changes in native plant communities from past management actions, such as fire suppression, road building, agricultural and urban conversion of wildlands, timber harvest, and grazing, have all contributed to the current altered fire environment. Changes in vegetative structure and increased fuel loads contribute to an increased risk of uncharacteristic fire behavior and effects. However, it is not desired, nor possible to restore every acre of federal land within the Planning Area to FRCC 1. In some areas, managing for FRCC 2 and 3 vegetative structures meets other resource objectives. None of the alternatives would eliminate wildfire from the ecosystem.
- **Treatment Strategies/Methods.** Fire and fuels management strategies/methods are intended to support protection, maintenance or enhancement of objectives for vegetation, wildlife habitat, and other resources, and the protection of private property and resources adjacent to BLM-managed lands. Restricting treatment strategies/methods would limit the reduction of hazardous fuels.

- **Opportunities to use unplanned natural (lightning) ignitions to achieve resource objectives.** Unplanned, natural ignitions can create burn patterns and fire effects that are difficult to impossible to attain using typical management actions, but carry the risk of unintended consequences when weather conditions become unfavorable. Increasing areas available for the use of wildland fire to achieve resource objectives also increases the area where fuel levels attain vegetative and fire/fuels objectives with decreased human interference. Levels of treatments proposed through the use of wildland fire to achieve resource benefits may range considerably from year to year, as frequency and occurrence of unplanned fire starts in a given year is unpredictable. The decision to use wildland fire to achieve resource benefits will be guided by many variables, including, but not limited to, firefighter and public safety, values at risk, weather, national and local preparedness levels, fuel conditions, specific resource objectives, and line officer approval.
- **Mechanized equipment restrictions for Fire Suppression or Fuels Treatments.** Averaged across the Decision Area, increasing restrictions on the use of mechanized equipment could increase acres burned in a wildfire. In addition, restricting the use of mechanical equipment to complete fuels management treatments could decrease effectiveness of fuels projects. The ability to access and prioritize fuels restoration and maintenance projects involves the consideration of multiple objectives at the landscape scale, including reduction of risk in the WUI; and enhancing or maintaining sustainable habitats; watersheds; visual resources; and recreational, social, and economic opportunities.
- **Potential for human-caused ignitions.** Human-caused ignitions, whether through accident, carelessness, or deliberate action, are expected to continue despite prevention efforts intended to reduce this particular risk. Managing or designing a vegetative environment that reduces fire hazard, including managing for species and structural characteristics, will produce manageable fire behavior in the event of an unplanned ignition.

Fire and Fuels Management Assumptions

- Fire management's ability to provide aggressive suppression actions, when and where necessary, could be substantially reduced through restricting or eliminating the use of mechanized equipment and retardant in areas of sensitive values. This could result in more acres being burned in these areas.

Magnitude of Impacts to Fire and Fuels Management

The analysis of potential impacts to fire and fuels management is based on the expertise of BLM resource specialists, guidance from national and state fire policies, and scientific literature.

Impacts are quantified where possible. Best professional judgment was used when quantifiable data were unavailable. The impacts are also described, where possible, using the following guidance:

<i>Negligible</i>	The impact would not be detectable. Threats to people, property or sensitive resources from wildfire would not change. Ability to implement a management response to wildfires and implementation of hazardous fuels treatments would not be affected. Changes to fuel loads, FRCC, and risk of undesirable wildfire would affect minimal acreage.
<i>Minor</i>	The impact would be detectable. Threats to people, property or sensitive resources from wildfire would be minimal. Few changes in ability to implement a management response to wildfires and implementation of hazardous fuels treatments would occur. Changes to fuel loads, FRCC, and risk of undesirable wildfire would be measurable or perceptible, but localized in relatively small areas.
<i>Moderate</i>	The impact would be readily apparent. Threats to people, property, or sensitive resources from wildfire would be noticeable. The ability to implement a management response to wildfires and implementation of hazardous fuels treatments would be constrained. Changes to fuel loads, FRCC, and risk of undesirable wildfire would be measurable or perceptible over a moderately sized area.
<i>Major</i>	The impact would be severe. Threats to people, property, or sensitive resources from wildfire would be greatly affected. The ability to implement a management response to wildfires and implementation of hazardous fuels treatments would be greatly changed. Changes to fuel loads, FRCC, and risk of undesirable wildfire would be measurable or perceptible over a large area.

The duration of impacts to fire and fuels management are defined as follows:

<i>Short-term:</i>	A change in a resource or its condition would generally last less than three years.
<i>Long-term:</i>	A change in a resource or its condition would last longer than three years.

Finally, beneficial and adverse effects as related to fire and fuels management are defined as follows:

<i>Adverse:</i>	Promotes or facilitates a continued accumulation of fuel loading to uncharacteristic levels for the plant community and historical fire regime; increases risk of uncharacteristic or unwanted fire behavior or fire effects relative to resource objectives, the plant community, or the historical fire regime; increased risk of post-fire invasion or dominance by invasive or noxious weeds; increased risk of continued conifer encroachment into plant communities where not desired; and/or an increased threat to private property or resources from fires that originate on BLM-managed land.
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Beneficial: Promotes or facilitates a reduction of fuel loading toward characteristic levels for the plant community and historical fire regime; decreased risk of uncharacteristic or unwanted fire behavior or fire effects relative to resource objectives, the plant community, or the historical fire regime; decreased risk of post-fire invasion or dominance by invasive or noxious weeds; decreased risk of conifer encroachment into plant communities; and/or a decreased threat to private property or resources from fires that originate on BLM-managed land.

b. Impacts to Fire and Fuels Management

Impacts to fire and fuels management in the Planning Area would result from actions proposed under the following resource management programs:

- Air Quality
- Climate
- Vegetative Communities
- Wildlife
- Special Status Species
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Livestock Grazing
- Recreation
- Travel and Transportation
- Lands and Realty (Land Tenure Adjustments)
- ACECs

Impacts Common to all Alternatives

Impacts from Climate

Average temperatures in the Pacific Northwest have increased by about 1 degree Celsius (1.8 degrees Fahrenheit [F]) since 1900, and the rate of warming over the last 50 years is nearly twice the rate of the previous 100 years (ISAB 2007). The rate of warming is expected to increase in the 21st century. Mean annual temperatures are expected to rise by 0.3 degrees Celsius (0.5 degrees F) per decade through 2050 in response to continued increase in atmospheric GHGs (Mote et al. 2008). After 2050, projected temperature increases would rely largely on changes in GHG emissions from the present levels. Total temperature increases could reach 3 degrees Celsius (5.3 degrees F), relative to the 1970-1999 average, by the decade of 2080-2089. Little change in precipitation is predicted, although model results vary from minus 10 percent to plus 20 percent change by 2080. Other expected changes in the Pacific Northwest include:

- Higher temperatures would result in more winter precipitation falling as rain instead of snow.
- Low elevation snowpacks may disappear completely; average snowpack is expected to decline by 53-65 percent by the decade 2080-2089.
- Winter precipitation is expected to increase slightly and summer precipitation is expected to decrease slightly.
- Increased winter and spring temperatures, combined with decreased winter snowfall, would exacerbate the current trend towards earlier spring runoff and lower late-season stream flow.
- Winter stream flow would be more variable with an increased likelihood of rain-on-snow floods.
- Increased risk of higher flood peaks, as well as increased risk of extended droughts, would be expected.
- Lower summer stream flow and higher summer water temperatures would likely alter disturbance regimes, including, but not limited to, increased fire severity and frequency and more frequent occurrences of forest insect and disease outbreaks.

Reductions in winter snowpack are already beginning to be reflected in earlier spring stream flow throughout the western United States (Stewart et al. 2005 and Hamlet et al. 2005), and this decline is expected to accelerate over the next century. Continued warming in the Pacific Northwest is likely to result in increased water use by vegetation (Hamlet et al. 2005) that may result in increased drought stress and reduced water availability. Redistribution of forested and non-forested habitats is expected, resulting in altered habitat conditions.

Climate change is expected to affect species range and species composition, and to alter species competitive relationships between plant species. Changes in the composition and structure of plant communities would, in turn, alter the character and distribution of vegetation and wildlife habitats. Future conditions may be more favorable to some undesired non-native plant species. The full extent of changes in response to climate change on natural resources in the Planning Area is uncertain, but a management priority is to maintain or increase the resilience of the vegetation in the face of these changes.

The impacts of climate change on fire and fuels management are difficult to quantify. Fire size, fire intensity, and fire season duration, as a result of climate change, are all likely to result in an increased risk to firefighter and public safety, property, or sensitive resources. This will place more emphasis on designing fuels and vegetation management projects that create or contribute to vegetative conditions that are more resilient to expected changes as a result of climate change.

Impacts from Air Quality

Air quality direction would result in some short-term delays in implementing prescribed burns. The effect on the prescribed fire program would be negligible, unless sufficient short-term delays result in a backlog of needed treatments. The creation of a backlog could result in delays in

attaining other resource objectives or a level of attainment below that expected in the RMP. The probability of such a backlog is unknown at this time. Air quality restrictions could also result in the need to suppress a fire that had the potential of helping to meet resource management objectives, thus perpetuating less than desirable conditions and increasing overall land management costs. However, the probability that air quality restrictions would be the primary factor in a decision to suppress all or part of a wildfire is likely negligible to minor.

Impacts from Special Status Species

Restrictions on the use of mechanical equipment, retardant use, or seasonal restrictions on vehicles used in the suppression of a wildfire within special status species habitat may result in larger wildfires. These restrictions could also affect how fuels treatments are designed within special status species habitat and may delay achievement of fire and fuels objectives. This potentially could result in contributing to a minor to moderate negative impact on achieving fire and fuels objectives over the long term.

Impacts from Recreation

The No Action Alternative provides for both dispersed and developed recreation opportunities. Recreation activities may result in the potential for more human-caused fires, especially in dispersed recreation areas without permanent facilities. While there have been fires caused by recreation activities within the Planning Area, the number of human caused fires related to recreation are a very small percentage of the total human caused fires. Therefore, impacts from current direction for recreation management described in the No Action Alternative on fire and fuels management would be minor.

No Action Alternative

Impacts from Vegetative Communities

Current Vegetative Communities management direction as identified in the No Action Alternative has contributed to an increased risk of uncharacteristic fire behavior and fire effects. This is evidenced by 85 percent of the Planning Area being currently classified as FRCC 2 and 3. Fire management strategies and fuels management treatment methods are not constrained by the No Action Alternative. The No Action Alternative does not preclude the opportunity to manage naturally ignited wildfires to achieve resource objectives; however, this tool has not been utilized within the Planning Area due to elevated fuel loading levels, as well as the increased potential for further invasion of non-native annual grasses into big sagebrush communities. This condition has also resulted in a minor elevated risk for human caused fires, especially in areas of high public use or where these uncharacteristic or undesired vegetative conditions exist within vehicle travel corridors.

Impacts from Wildlife

Current wildlife management direction as identified in the No Action Alternative has had negligible effects on fire and fuels management within the Planning Area. The main impact has been the potential for conflict between meeting habitat and life requirements (breeding, nesting, wintering, etc) for wildlife while simultaneously implementing vegetative and fuels projects, which could create a backlog of needed treatments. Primarily, these conflicts are of relatively short duration and generally do not preclude implementation of fire and fuels projects, however the creation of a backlog could result in delays implementing projects.

Impacts from Fire and Fuels Management

Current Fire and Fuels Management direction as identified in the No Action Alternative has had moderate, beneficial effects at the site specific level, but at the Planning Area scale the effects can be best described as minor and beneficial. Existing fire and fuels management program emphasis has been to create conditions within the WUI to provide for firefighter and public safety and protection of property and other resource values. This emphasis has resulted in a decreased risk for uncharacteristic fire behavior and effects at the project scale. Implementation of Community Wildfire Protection Plans is ongoing and would broaden the scale of fuels treatments into the future. Outside of the WUI, the emphasis for the fuels program has been on restoration of ecosystems where non-native annual grasses exist as well as reducing conifer/juniper encroachment into non-forest/woodland vegetative communities. Similar to the projects within the WUI, these projects have had moderate beneficial effects at the project scale but minor beneficial effects at the Planning Area scale. Continued implementation of the No Action Fire and Fuels Management direction is not expected to result in a large scale decrease in firefighter and public safety, uncharacteristic fire behavior and effects, or improvement of FRCC. The No Action Alternative does not preclude the opportunity to manage naturally ignited wildfires to achieve resource objectives; however, this tool has not been utilized within the Planning Area due to elevated fuel loading levels as well as the increased potential for further invasion of non-native annual grasses into big sagebrush communities.

Impacts from Visual Resource

The No Action Alternative classifies 38 percent of lands within the Planning Area as VRM Classes I and II. The use of mechanical equipment for both fire suppression and fuels management activities is prohibited within the Class I areas unless a waiver is obtained. Lands in VRM Class II have restrictions on the type of activities that would be allowed (must not attract attention or result in long-term visual changes). This direction has resulted in minor impacts to fire and fuels management.

Impacts from Lands with Wilderness Characteristics

No areas would be managed for wilderness characteristics outside existing WSAs under the No Action Alternative. Therefore, there would be no impacts to fire and fuels management.

Impacts from Livestock Grazing

The No Action Alternative provides the most acreage available for livestock grazing. Livestock grazing impacts fire/fuels management in a variety of ways. These include removal of fine fuels necessary to carry prescribed or naturally occurring fire and altering vegetative composition which effects FRCC. In addition, prescribed fire or use of wildfire to achieve resource objectives could be delayed for implementation due to the need to coordinate grazing activities with project implementation activities. The final size of fires could be affected depending upon how much fine fuel has been removed by livestock grazing. Overall, continued livestock management as described under the No Action Alternative would have minor impacts to fire and fuels management.

Impacts from Travel and Transportation

Off-highway use can lead to human caused fires. The No Action Alternative designates the most land as 'open' (67 percent of the Planning Area). While this may contribute to an increase in the potential for human-caused fires, the overall effect on managing fire/fuels would be negligible. This is because the majority of human caused fires within the Planning Area occurs within the I-84 and Snake River Canyon corridors and is not a result of OHV use. Areas designated as closed or limited have the potential to result in a delayed suppression response while acquiring approval to use of mechanical equipment (if necessary). This could result in the potential for increased fire size, intensity, and effects.

Impacts from Lands and Realty (Land Tenure Adjustments)

The criteria for acquisition and disposal of lands proposed under all alternatives emphasize consolidation of continuous blocks of BLM land. Currently, there are many small isolated blocks of public lands scattered throughout the Planning Area. These small parcels are not of sufficient size to utilize management of wildfires to achieve resource benefit and are currently classified for full suppression for all wildfire ignitions. Fuels treatments within the WUI have been planned and implemented and have resulted in minor, long-term, beneficial impacts. The isolated small parcels of public land outside the WUI have not had any fuels projects implemented due to the relative costs to implement projects that have a very limited affect on fire behavior and fuel conditions at a large enough scale to have long-term benefits to fire and fuels management.

Impacts from ACECs

Under the No Action Alternative, prescribed fire, use of wildland fire and mechanical treatments are not expressly prohibited and would be allowed in ACECs, but under more stringent conditions than elsewhere. More stringent conditions may increase the difficulty of implementing a fire/fuels project within or near ACECs. Most of the ACECs limit the use of mechanical treatment for wildfire suppression and fuels treatments unless values of the ACEC

are preserved. These restrictions could potentially result in fuel and/or vegetative conditions that result in larger fires with undesirable fire effects, as well as potential increased risk to firefighter and public safety. Overall, the impacts from ACEC management direction on fire and fuels management under the No Action Alternative have been observed to be minor to moderate over the long term.

Impacts Common to all Action Alternatives

Impacts from Wildlife Management

The management actions identified for wildlife management in Chapter 2 allow for opportunities to implement projects that would meet fire and fuels management objectives. None of the management actions would change firefighter and public safety as the top priority. Also, fire management strategies and fuels treatment methods would not be restricted. Timing of implementation of specific projects could be restricted at certain times of the year to accommodate habitat needs of wildlife species and may result in short-term delays in implementing projects that would benefit fire and fuels. This would be a minor short-term impact, unless the delays create a backlog of projects for implementation as a result of timing issues.

Impacts from Fire and Fuels Management

The fire and fuels management management actions would not limit fire management strategies or fuels treatment methods that could be utilized to achieve fire and fuels management goals and objectives. In addition, the opportunity to use wildfires to achieve resource objectives would be available for implementation under each of the action alternatives. The ability to achieve fire and fuels objectives would be driven primarily from management direction from other resources and not from the fire and fuels management direction in this RMP.

Impacts from Lands and Realty (Land Tenure Adjustments)

The criteria for acquisition and disposal of lands proposed under all alternatives emphasize consolidation of continuous blocks of public lands. This would facilitate more use of wildland fires to achieve specific resource benefits, as well as provide opportunities for larger scale fuels projects. The impacts from land tenure adjustments under the action alternatives would be the same as the No Action Alternative, although additional acres are identified for disposal. Consolidation and disposal of lands would be moderately beneficial to the fire/fuels program due to a reduction in isolated, small blocks of land being removed from public ownership

*Alternative 1*Impacts from Vegetative Communities

Management actions for vegetative communities under Alternative 1 would have moderate, beneficial impacts to fire and fuels management within the Planning Area. The use of mechanical vegetative treatments, prescribed fire, and wildland fire management treatment methods would improve FRCC and reduce fire size and intensity over the life of this RMP. This would result in a decrease in the risk of uncharacteristic or unwanted fire behavior/effects, as well as the threat to firefighter and public safety.

Impacts from Visual Resource

The types of impacts from VRM classifications would be the same as identified under the No Action Alternative; however, the magnitude of impacts would be much greater due to the categorization of areas in VRM classes I and II at 62 percent. Fire and fuels management projects that are proposed in areas classified in VRM classes I and II would be designed to meet VRM objectives. This would result in limitations on the use of mechanical equipment to complete fire and fuels projects in these areas, which could have a moderate, adverse impact on objectives to reduce uncharacteristic or unwanted fire behavior/effects.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, areas managed to protect wilderness characteristics would be restricted from use of mechanical treatments. Planned and unplanned fires would be the primary mechanism to provide for fuels treatment in these areas. In forested or woodland areas, hazardous fuels buildup may increase the risk of uncharacteristic wildfire behavior/effects. Overall, management direction for wilderness characteristics would have minor, negative impacts to fire and fuels management within the areas managed for wilderness characteristics, but negligible impacts to the overall fire and fuels program for the Decision Area.

Impacts from Livestock Grazing

Alternative 1 provides approximately 200 fewer acres available for livestock grazing than the No Action Alternative. Impacts would be the same as the No Action Alternative, with the exception that coordination between livestock grazing activities and fire/fuels activities would be less because fewer acres are available for livestock grazing. In addition removal of livestock grazing on 200 acres may contribute to increased fire size and intensity due to increased buildup of fine fuels.

Impacts from Travel and Transportation

Off-highway use can lead to human-caused fires. Alternative 1 designates 1 percent of the Planning Area as ‘open’. This is far less than proposed under the No Action Alternative. The potential for human caused fires is less than the No Action Alternative.

Under Alternative 1, the closure of existing roads may delay suppression efforts. If a road is obliterated or “ripped”, a dozer may be needed to reopen it during a fire incident. Depending upon the nature and location of the fire, this may delay suppression efforts longer than under the No Action Alternative.

Impacts from ACECs

Impacts from ACEC designation and management would be the same as identified under the No Action Alternative, although impacts would be more extensive as 35,603 more acres would be under ACEC designation. Under Alternative 1, prescribed fire, use of wildland fire and mechanical treatments are not expressly prohibited and could be allowed in ACECs, but under more stringent conditions than elsewhere. More stringent conditions (such as approval for mechanical equipment use) may increase the difficulty of implementing a fire/fuels project and/or suppression actions within or near ACECs.

Alternative 2Impacts Same as the No Action Alternative

- Impacts from Lands with Wilderness Characteristics

Impacts from Vegetative Communities

Management actions for vegetative communities under Alternative 2 would have moderate, beneficial impacts to fire and fuels management within the Planning Area. Mechanical and prescribed fire treatment methods would be allowed. The use of wildland fires to meet specific resource objectives would be prohibited. Management actions for vegetation management would improve FRCC and reduce both fire size and intensity over the life of this plan; however, not to the same magnitude as the other action alternatives.

Impacts from Visual Resource

The types of impacts from VRM classifications would be the same as identified under Alternative 1. However, the magnitude of the impacts to the Fire and Fuels management program would be considerably less, as 30 percent of the Decision Area would be managed for VRM Classes I and II.

Impacts from Livestock Grazing

Alternative 2 provides approximately 7,700 more acres available for livestock grazing than the No Action Alternative. Impacts would be the same as the No Action Alternative, with the exception that coordination between livestock grazing activities and fire/fuels activities would be greater because more acres are available for livestock grazing. In addition, authorization of livestock grazing on 7,700 more acres may contribute to decreased fire size and intensity due to more fine fuels being removed on an annual basis.

Impacts from Travel and Transportation

Off-highway use can lead to human-caused fires. Alternative 2 designates 5 percent of the Planning Area as ‘open’. This is far less than proposed under the No Action Alternative and slightly more than Alternative 1. The potential for human caused fires would be less than under the No Action Alternative, but slightly higher than under Alternative 1.

Under Alternative 2, the closure of existing roads may delay suppression efforts for a short period of time. If a road is obliterated or “ripped,” a dozer may be needed to reopen it during a fire incident. Depending upon the nature and location of the fire, this may delay suppression efforts longer than under the No Action Alternative.

Impacts from ACECs

Impacts from ACEC designation and management would be the same as identified under the No Action Alternative. Under Alternative 2, however, 5,826 fewer acres would be under ACEC designation. Under Alternative 2, prescribed fire and mechanical treatments are not expressly prohibited and could be allowed in ACECs, but under more stringent conditions than elsewhere. More stringent conditions (approval for mechanical equipment use) may increase the difficulty of implementing a fire/fuels project and/or suppression actions within or near ACECs.

Alternative 3Impacts Same as Alternative 1

- Impacts from Vegetative Communities
- Impacts from Visual Resources
- Impacts from Lands with Wilderness Characteristics

Impacts Same as Alternative 2

- Impacts from Travel and Transportation

Impacts from Livestock Grazing

Alternative 3 provides approximately 8,300 fewer available acres for livestock grazing than the No Action Alternative. The impacts would be the same as the No Action Alternative, with the exception that coordination between livestock grazing activities and fire/fuels activities would be less because fewer acres are available for livestock grazing. In addition the removal of livestock grazing on 8,300 acres may contribute to increased fire size and intensity due to increased buildup of fine fuels.

Impacts from ACECs

Impacts from ACEC designation and management would be the same as identified under the No Action Alternative. Under Alternative 3, however, 7,747 more acres would be under ACEC designation. Under Alternative 3, prescribed fire, management of naturally ignited wildfires to meet specific resource objectives, and mechanical treatments are not expressly prohibited and could be allowed in ACECs, but under more stringent conditions than elsewhere. More stringent conditions (approval for mechanical equipment use) may increase the difficulty of implementing a fire/fuels project and/or suppression actions within or near ACECs.

*Alternative 4*Impacts Same as Alternative 1

- Impacts from Vegetative Communities
- Impacts from Lands with Wilderness Characteristics
- Impacts from Visual Resources
- Impacts from Travel and Transportation

Impacts from Livestock Grazing

Alternative 4 provides approximately 54,200 fewer acres available for livestock grazing than the No Action Alternative. The impacts would be the same as the No Action Alternative, with the exception that coordination between livestock grazing activities and fire/fuels activities would be less because fewer acres are available for livestock grazing. In addition, removal of livestock grazing on 54,200 acres may contribute to increased fire size and intensity due to increased buildup of fine fuels.

Impacts from ACECs

Impacts from ACEC designation and management would be the same as identified under the No Action Alternative. Under the Alternative 4, however, 45,838 more acres would be under ACEC designation. Under Alternative 4, prescribed fire, management of naturally ignited wildfires to meet specific resource objectives, and mechanical treatments are not expressly prohibited and could be allowed in ACECs, but under more stringent conditions than elsewhere. More stringent

conditions (approval for mechanical equipment use) may increase the difficulty of implementing a fire/fuels project and/or suppression actions within or near ACECs.

Alternative 5

Impacts Same as Alternative 1

- Impacts from Vegetative Communities
- Impacts from Lands with Wilderness Characteristics
- Impacts from Visual Resources
- Impacts from Travel and Transportation

Impacts Same as Alternative 4

- Impacts from ACECs

Impacts from Visual Resource

The impacts from VRM classifications would be the same as identified under the No Action Alternative, as the percentage of the landscape managed in VRM Classes I and II would be very similar.

Impacts from Livestock Grazing

Alternative 5 provides approximately 124,600 fewer acres available for livestock grazing than the No Action Alternative. The impacts would be the same as the No Action Alternative, with the exception that coordination between livestock grazing activities and fire/fuels activities would be less because fewer acres are available for livestock grazing. In addition, removal of livestock grazing on 124,600 acres may contribute to increased fire size and intensity due to increased buildup of fine fuels.

Impacts from Recreation

Alternative 5 provides for both dispersed (within 100 feet of roads and trails) and developed recreation opportunities. Recreation activities may result in the potential for more human-caused fires, especially in dispersed recreation areas without permanent facilities. While there have been fires caused by recreation activities within the Planning Area, the number of human-caused fires related to recreation are a very small percentage of the total fires caused by humans. Therefore, impacts from recreation on fire/fuels management would be minor.

Alternative 5a

All impacts would be the same as described under Alternative 5, with the following exception.

Impacts from Livestock Grazing

Alternative 5a would eliminate livestock grazing from all lands within the Planning Area. This would eliminate the need to coordinate between livestock grazing and fire/fuels activities. Under this alternative, which eliminates grazing, the potential size and intensities of wildfires would likely increase due to increased buildup of fine fuels. In addition, there is a potential greater threat to the WUI from wildfires burning on public lands due to the increased availability of fine fuels for burning. This may also result in increased risk to firefighter and public safety.

c. Cumulative Impacts

No Action Alternative

Past management actions that have affected fire and fuels management include the expansion of non-native annual grasses, the management of sagebrush/grass communities for mid-seral to late-seral conditions, fire suppression, past timber harvest activities, livestock grazing, visual resources, livestock grazing, land tenure, wildlife, ACEC management, recreation, and travel management.

Present and future actions that could affect fire and fuels management include the continuation of resource management under the No Action Alternative, fuels and fire management activities conducted on adjacent land ownerships (private, local government, state, federal), and climate change.

Past, present, and future actions would have both beneficial and negative cumulative impacts to fire and fuels management within the Planning Area. Limited beneficial cumulative impacts have resulted from, and would continue through, the completion of vegetation and fuels management projects that alter vegetative structure and fuel loadings to levels that result in conditions that reduce potential negative impacts from uncharacteristic fire behavior/effects. Although positive impacts have been, and would likely continue, to be observed as a result of these types of projects, the limited scale at which these projects are occurring is not large enough to have a positive impact over the long term in the reduction of unwanted fire behavior/effects. This would also continue to limit the potential to manage naturally ignited fires to achieve resource objectives. Overall, the cumulative impacts of current management direction on fire and fuels management would be adverse, minor to moderate, over the long term.

Alternative 1

Past and present management cumulative impacts would be the same as described under the No Action Alternative.

Alternative 1 would provide for a full suite of fire and fuels management strategies/tools to support achievement of fire and fuels objectives. However, in areas managed for VRM Classes I and II, there may be restrictions placed on the use of mechanical equipment. In these areas, the

use of mechanical treatment methods may be restricted, which may slow progress toward reducing the risk of uncharacteristic wildfire behavior/effects. There is the potential for delays in implementing projects as a result of air quality concerns and/or to meet habitat or life cycle needs for wildlife. This could result in creation of a backlog of projects in need of implementation; however, this impact would be minor and short term.

Overall, management actions for Alternative 1 are anticipated to have beneficial long-term impacts on fire and fuels management within the Decision Area.

Alternative 2

The past and present cumulative impacts of management would be the same as described under the No Action Alternative.

Alternative 2 would provide for a full suite of fire and fuels management strategies/tools to support achievement of fire and fuels objectives. There is the potential for delays in implementing projects as a result of air quality concerns and/or to meet habitat or life cycle needs for wildlife. This could result in creation of a backlog of projects in need of implementation; however, this impact would be minor and short-term. This alternative also provides for commodity production, which would help achieve fire and fuels objectives by reducing fuel accumulations within proposed forest and woodland treatment areas. Alternative 2 also provides for the least amount of acres to be managed in VRM Classes I and II. However, in areas managed for VRM Classes I and II, there may be restrictions placed on the use of mechanical equipment. In these areas the use of mechanical treatment methods may be restricted, which may slow progress toward reducing the risk of uncharacteristic wildfire behavior/effects.

Overall, management actions for Alternative 2 are anticipated to have beneficial long-term cumulative impacts on fire and fuels management within the Decision Area.

Alternative 3

The past and present cumulative impacts of management would be the same as described under the No Action Alternative.

Overall, the management direction provided by Alternative 3 would have beneficial, long-term, cumulative impacts. However the restrictions placed on fire and fuels management as a result of increased acres being managed for VRM Classes I and II, the increase in acres managed for ACECs, the decreased acres available for livestock grazing, and the resultant increase in fine fuels would have a smaller magnitude of beneficial cumulative impacts than those identified under Alternatives 1, 2, or 4.

Alternative 4

The past and present cumulative impacts of management would be the same as described under the No Action Alternative.

Overall, the management direction provided by Alternative 4 would have beneficial, long-term, cumulative impacts. However the restrictions placed on fire and fuels management as a result in the proposed increase in acres managed for ACECs, the decreased acres available for livestock grazing, and the resultant increase in fine fuels would have greater magnitude of beneficial cumulative impacts than the No Action Alternative and Alternatives 3, 5, or 5a. Cumulative impacts for Alternative 4 would be similar to those identified under Alternatives 1 and 2.

Alternatives 5 and 5a

The past and present cumulative impacts of management would be the same as described under the No Action Alternative.

Alternatives 5 and 5a provide for the lowest level of active management and least amount of livestock grazing, which is anticipated to provide for the least beneficial cumulative impacts to fire and fuels management ability to achieve objectives. Fire size and intensity would increase with the increased amount of fine fuels available as a result of decreased grazing under these two alternatives. This could result in a greater risk to firefighter and public safety and greater threat to WUI areas from fires burning on adjacent public lands.

Overall, the management direction provided by Alternatives 5 and 5a would provide for limited beneficial impacts to fire and fuels management over the long term.

13. CULTURAL RESOURCES AND RESOURCES OF IMPORTANCE TO NATIVE AMERICAN TRIBES

Proposed management actions described in the alternatives may have beneficial and/or adverse impacts on cultural resources and natural resources of importance to Native American tribes. Adverse impacts to sites on or eligible for the National Register of Historic Places (NRHP) would be mitigated, as required by Federal law and regulation. Actions that increase the risk of adverse impacts to cultural resources and natural resources important to federally recognized tribes include those that involve ground disturbance, fire, vandalism and looting, trampling, OHV use off-road and changes that impact fish, game, and plant habitat quality. These resources can also be positively impacted through protective management strategies that reduce erosion, strengthen vegetative resources, improve fish, game and cultural plant habitat, promote Native American Tribal participation, and actions that reduce access to sensitive habitat or site locations.

Large-scale pedestrian surveys to identify cultural resources within the entire Decision Area are cost prohibitive given current funding and the number of acres needing to be surveyed. For

analysis purposes, cultural resources are assumed to be present at high probability locations including around springs and drainages areas, lithic procurement areas, geologic areas that contain rock shelters, and areas that offer panoramic views. This assumption would likely lead to an overestimation of potential impacts, but the analysis also assumes that all authorized and planned actions would be subject to review under the Section 106 process and tribal consultation to address anticipated impacts and site-specific impacts. Sites are recorded during the survey process and the results are consulted on with local and regional, federally recognized tribes. When sites that are determined to be eligible to the NRHP cannot be avoided, the adverse effects to these sites would be mitigated.

Each of the seven federally recognized tribes with interest in the Planning Area and Decision Area has their own unique set of values, beliefs and traditions. Such a diverse group of tribes will undoubtedly have a wide variety of resource concerns. However, in general these concerns tend to focus around resource availability, habitat quality, access, and protection measures. In some cases, specific impacts by alternative for natural resources including: water resources, vegetation, wildlife and fish, and others may be best addressed within their specific sections of Chapter 4. However, it is important to remember that beneficial or adverse impacts to natural resources in other sections would impact the natural resource base available to these seven tribes.

a. Indicators, Methods, and Assumptions

Cultural Resource Indicators

The primary indicators for assessing the condition of cultural resources are the integrity of the cultural property, characteristics that may qualify the property for listing on the NRHP, and/or the qualities that give an area cultural importance to Native American tribes and other traditional communities. Factors that could affect site integrity, NRHP characteristics, and qualities of traditional importance include:

- The extent, size, and depth of ground-disturbing activities in areas of known or unknown intact cultural resources, including properties of traditional religious and cultural importance.
- The extent to which BLM actions would intrude or alter the setting of cultural resources, including properties of traditional religious and cultural importance.
- The extent to which BLM actions could increase the potential for the occurrence of natural processes that negatively impact cultural resources, including properties of traditional religious and cultural importance.
- The extent to which BLM actions would increase access and activities in areas where there are cultural resources, including properties of traditional religious and cultural importance are present.
- The extent to which BLM actions would create changes in land tenure or land use that could impair future exercise of traditional activities.

Resources Important to Native American Tribes Indicators

Primary indicators for assessing impacts to tribal use and resources of interest include:

- Changes in availability, access, or land use that would affect the natural resource base used by the tribes, including fish, wildlife, big game, plants and water resources.
- Changes in access to or impacts on cultural resource sites, including traditionally used resources and properties of traditional/religious and cultural importance.
- Changes in general ecosystem health, water quality, and riparian function.
- Changes in land tenure or land use that could impair future exercise of treaty rights.

Cultural Resource Methods and Assumptions

Impacts on cultural resources are determined by applying the criteria of adverse effect as defined in 36 CFR 800.5a. These criteria state that “[a]n 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 properties of traditional religious and cultural importance as well. Consultation with the affected Native American tribes or other communities is required prior to an action that may affect that community. All laws for the management and protection of cultural resources would be followed.

The assumptions used in this analysis are as follows:

- Measures that withdraw land or restrict surface development for the purpose of resource protection can provide direct and indirect protection of cultural resources from disturbance, incompatible activities, and unauthorized activities.
- Natural processes, such as erosion or weathering, will degrade the integrity of many types of cultural resources over time. Human visitation, recreation, vehicle use, grazing, fire and non-fire 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 uses or visits over time could increase the intensity of impacts due to natural processes.
- Vandalism, unauthorized collecting, and other unauthorized activities can destroy a cultural resource in a single incident. Exposure of cultural resources or access to areas where cultural resources are present can increase the risk of vandalism, unauthorized collection or other detrimental unauthorized uses.

Resources Important to Native American Tribes Methods and Assumptions

Impacts on resources and resource uses of interest to Native American tribes considered in this analysis are based on rights established by treaty and the unique trust relationship between tribes and the federal government. The federal trust responsibility includes the obligation to protect tribal lands, trust assets, and treaty rights and to carry out the mandates of federal law. A variety of federal laws, EOs, regulations, and BLM guidance related to land use, subsistence, endangered species, and cultural resources specifically address tribal rights in the context of this trust relationship. These rights include consulting with tribal representatives on identifying and protecting cultural and sacred sites, provisions for reasonable access to these sites, and access for tribal members to harvest and gather plant, animal, and aquatic resources. While the focus of this section is on treaty rights and traditional uses, there is necessarily some overlap with cultural resources and other resources in the impact discussion.

There are no lands within the Decision Area that are formally held in trust for tribes by the BLM. At least one tribe has grazed lands on public lands managed by the Baker FO. Members of the Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Confederated Tribes of the Warm Springs Reservation Tribes exercise their hunting, fishing, and gathering rights on federal lands outside the boundaries of their reservation, including BLM-administered lands within the Planning Area. The Shoshone-Bannock Tribes of the Fort Hall Reservation also have treaty rights for hunting on unoccupied federal lands. The Burns Paiute Tribe, Confederated Tribes of the Colville Reservation, Shoshone-Bannock Tribes, and Shoshone-Paiute Tribes have traditional interests in the Planning Area. These pursuits include fishing for resident and anadromous fish species, hunting large and small game, and gathering natural resources for subsistence and cultural purposes. Specific locales of cultural, traditional use or religious significance may also be considered by the tribes to be traditional cultural properties. Impacts to treaty resources and traditional uses are frequently discussed below using the term traditionally used resources. This term is used to describe landscapes, objects, plants and animals, habitat, and/or sites and structures that were historically and currently are important to Native American culture and traditions.

The assumptions used in this analysis are as follows:

- The extent of current tribal use is not known. It is expected that the demand from Native Americans to exercise their treaty rights and traditional uses on BLM-administered lands within the Decision Area will continue, and potentially increase, in the future. It is anticipated that some of the species, or use locations, sought after by tribal users are the same as those sought by other communities.
- There is little specific information on the exact species sought or locations used by Native Americans exercising treaty rights or traditional uses. Culturally important locations are often not discussed outside of the community and may be present in the Decision Area. Seven recognized tribes have expressed varying concerns over natural resource management.

- On a case-by-case basis, motorized access would be granted to federally recognized tribes in Closed or Limited travel areas to facilitate traditional uses and access to treaty resources. Motorized access would be granted for specific areas, as long as, motorized use does not conflict with other resource management concerns. The duration and timing of motorized access granted would be based on activities requested.
- The BLM, as a federal agency, will continue to maintain government-to-government relationships with federally recognized Native American tribes. Ongoing consultation with and participation by tribes in resource management planning is necessary to determine whether actions would impact Native American tribal uses. Consultation with the affected community is required to resolve impacts. Overall impacts could be minimized with mitigation measures, including avoidance.
- Tribal groups have a special role in the Section 106 process in the identification, evaluation, effect determination, and resolution of adverse effects on cultural resources, including sacred sites and properties of traditional religious and cultural importance. Likewise, the BLM would continue to respect the consultation roles and rights of tribes under Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act, NEPA, Federal Land Policy Management Act (FLPMA), EOs, regulations, and BLM guidelines.

Magnitude of Impacts to Cultural Resources

Impacts are quantified where possible. However, quantifying effects to cultural resources is difficult due to the lack of survey and monitoring data within the Decision Area. In absence of quantitative data, the best professional judgment is used. Impacts are sometimes described using ranges of risk or potential impacts or in qualitative terms, if appropriate. The magnitudes of the impacts are described, where possible, and represent the best professional judgment, using the following guidance:

Negligible: Impacts to cultural resources, either beneficial or adverse, would be so slight as to be barely measurable or perceptible.

Minor: Impacts to cultural resources would be measurable and detectable, although they would be slight and localized to a small area (less than 10 acres) for a site or very small group of sites. The management action would not affect the character or diminish the features of a NRHP eligible or listed site. Beneficial impacts would consist of actions that promote small, but measurable and detectable changes towards cultural resource protection over an area less than 10 acres.

Moderate: Impacts on cultural resources would be measurable and readily perceptible. The actions could change one or more defining characteristics or features of the cultural property to the extent that its NRHP eligibility would be jeopardized or would have small, but measurable or detectable, affects over a larger area (10 acres to 1,000 acres). Beneficial impacts would consist of actions that promote

measurable and readily perceptible changes toward cultural resource protection within large areas, and with the potential to benefit multiple sites.

Major: Adverse impacts to cultural resources would be substantial, noticeable, and permanent. Actions would diminish the integrity and/or character of a site or multiple sites to the extent that they would no longer be eligible to the NRHP or actions could have small, but measurable or detectable, effects over a very large area (1,000 or more acres). Beneficial impacts would consist of actions that promote measurable and readily perceptible changes toward long-term cultural resource protection within large areas, and with the potential to benefit multiple sites.

Magnitude of Impacts to Resources Important to Native American Tribes

Impacts are assessed assuming compliance with Section 106 of the National Historic Preservation Act (NHPA) and government-to-government tribal consultation and identified mitigation. The magnitude of impacts are also described, where possible, using the following guidance for resources of importance to Native American tribes:

Negligible: The impact to Native American resources and areas of concern and access would be at the lowest levels of detection, barely measurable with any perceptible consequences, either beneficial or adverse.

Minor: The impact on Native American resources and areas of concern and access would be measurable or perceptible, but it would be slight and localized in a relatively small area. The action would not affect the character or permanently impede access to traditional use or sacred areas. Impacts would have little to no permanent effect on the integrity of any traditionally used resource or traditional use area. Beneficial impacts would promote the availability and access to traditionally used resources and traditional uses to less than 10 acres.

Moderate: The impact would be measurable and perceptible. The action would change one or more characteristics or defining features of a property of traditional religious or cultural importance, sacred site or area containing resources significant to a tribe. Actions would not diminish the integrity of the resource to the extent that it would no longer qualify for the NRHP. Access and availability of sacred or traditional use areas or traditionally used resources would be affected and could cause changes in traditional use patterns. Beneficial impacts would promote the availability and access to traditionally used resources and traditional uses over an estimated 10 to 1,000 acres.

Major: The impact on resources of importance to Native Americans would be substantial, noticeable, and permanent. The action would change or affect one or more character defining features of a traditionally used resources or traditional use area; diminish the integrity of the resource to the extent that it no longer would be able to sustain traditional or sacred uses; or prevent access to sacred or traditional use areas. Beneficial impacts would promote the availability and access to

traditionally used resources and traditional uses to an estimated 1,000 or more acres.

Temporal Scale:

Short-term: Impacts occur within 0 to 5 years of project implementation.

Long-term: Impacts occur over longer than 5 years.

b. Impacts to Cultural Resources and Resources of Importance to Native American Tribes

Impacts to cultural resources and resources of importance to Native American tribes in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Vegetation Communities
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Special Status Species
- Fire and Fuels Management
- Cultural Resources
- Visual Resources
- Lands with Wilderness Characteristics
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACEC/RNAs
- WSRs
- WSAs

Impacts Common to All Alternatives**Impacts from Cultural Resources*****Cultural Resources***

Management actions under cultural resources would preserve and protect cultural resources and help ensure that they are available for appropriate uses. Impacts from proposed actions would be minimized or avoided by complying with laws and EOs designed to preserve and protect cultural

resources. Authorized actions require consultation with federally recognized tribes and other interested parties to identify and evaluate cultural resources, and to adhere to procedures for resolving any adverse effects and mitigating impacts. Section 106 inventories would help avoid and mitigate impact from purposed actions. Impacts would be major, beneficial, and long-term under all alternatives.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of importance to recognized Native American tribes, when they coincide. Impacts would be major, beneficial, and long-term under all alternatives.

Impacts from Fire and Fuels Management

Cultural Resources

Under all alternatives there would be long- and short-term impacts on cultural resources. Treatments are associated with potential impacts on cultural resources, but could decrease the risk of impacts on these resources from catastrophic wildfire, subsequent suppression activities, and erosion over the long term.

Wildfire can disturb cultural resources through the destruction or modification of structures, features, and artifacts. Organic material and the information that can be obtained from their study are especially vulnerable to heat damage. Fire management and suppression activities may involve ground-disturbing activities that could also directly affect cultural resources by altering the spatial relationship of archaeological sites. Fire can result in impacts through erosion and the increased visibility of cultural resources. It can also remove vegetation and expose previously undiscovered resources, allowing their study and protection; however, sites exposed by fire or flagged for avoidance during prescribed fire activities can be susceptible to vandalism and unauthorized collection. Impacts would be similar under all alternatives, and would range from major, long term, and adverse to major, long term, and beneficial, depending on fire type and site specific conditions.

Resources of Importance to Native American Tribes

Under all alternatives, wildfire could directly disturb properties of traditional religious and cultural importance, traditionally used, cultural and other resources of importance to tribes. Destruction or modification of resources would create long- and short-term impacts on tribal uses. Well-planned, prescribed fire projects could help prevent wildfires that temporarily reduce access and resources. Fires, whether naturally occurring or prescribed, could improve general ecosystem health and, ultimately, the natural resource base used by recognized tribes. Impacts from implementing fuels management actions would range from minor to moderate, long term, and adverse to major, long term, and beneficial, and would be less intense than from wildfire.

Impacts from Minerals*Cultural Resources*

The majority of the Decision Area would remain open to mineral exploration and development. Demand for locatable and salable minerals has increased with the price of precious metals. The demand for mining claims is expected to increase over the life of the RMP, dependent upon the market for the minerals. Areas open to exploration, development, leasing, and/or material disposal could experience increased incidence of impacts to cultural resources (compared to areas that are closed). Impacts include physical disturbance, erosion, intrusions to setting, increased activity in the area, and vandalism and unauthorized collection. Impacts would be site specific and be long term, negligible to minor, and adverse under all alternatives, after mitigation.

Resources of Importance to Native American Tribes

Areas open to exploration, development and leasing could experience increased incidence of impacts on tribal use (compared to closed areas) from change in access, physical disturbance of habitat, additional noise and other intrusions to the setting. Impacts would be short and long term, site-specific and would range from negligible to moderate, and adverse under all the alternatives.

Impacts from WSAs*Cultural Resources*

Wilderness Study Areas would directly reduce the risk of impacts on cultural resources from ground-disturbing activities, erosion, intrusions to setting, and access that can lead to unauthorized collection or vandalism. However, areas of relative isolation and reduced monitoring by law enforcement (due to limited access) are also prone to looting. The number of acres for WSAs does not change by alternative. Impacts would be long-term, minor to moderate, and beneficial.

Resources of Importance to Native American Tribes

Maintaining the wilderness character of WSAs would retain the setting and integrity of culturally significant areas and promote the protection of existing fish and wildlife habitat. Impacts would be long-term, minor to moderate, and beneficial.

*No Action Alternative*Impacts from Water Resources*Cultural Resources*

Although management actions do not specifically require restoration along streams, approximately 40 miles of some type of restoration occurs every 10 years. Less active restoration is proposed under this alternative, which reduces the risk of impacting cultural resources and access to culturally important places, but also reduces the potential to stabilize stream bank soils and reduce erosion. Streambank erosion would result in site-specific, moderate to major, long-term, and adverse impacts to cultural resources.

Under the No Action Alternative, exclosures are proposed to reduce physical impacts to riparian areas. Beneficial impacts would be limited to site-specific locations where riparian exclosures occur and exclosure maintenance is kept up. Impacts would be short- and long-term, site specific, moderate, and beneficial.

Resources of Importance to Native American Tribes

Affected local and regional tribes have identified water quality and restoration of fisheries as important to their treaty rights and tribal uses. Current actions would reduce a dramatic decline in riparian resources, but may not provide the best protection and restoration for riparian dependent species desired by the tribes for traditional cultural practices. Impacts could be long-term, moderate, and adverse within riparian areas that could benefit from restoration activities.

Impacts from Soil Resources*Cultural Resources*

The No Action Alternative allows for motorized travel in areas designated as “open,” which would create a high risk of physical impacts to cultural sites located in areas susceptible to erosion. If adverse impacts are not identified and mitigated early, they can lead to damage or destruction of cultural resources. Impacts have the potential to be long-term, moderate to major, and adverse.

Resources of Importance to Native American Tribes

Impacts to cultural resources would also apply to other resources of importance to recognized Native American tribes. The destabilization of soils in areas Open to motorized use could have an adverse impact on the production of plant species important to Native Americans. Impacts would be site-specific and would range from short- and long-term, minor to major, and adverse.

Impacts from Vegetative Communities*Cultural Resources*

Under the No Action Alternative, improvements to vegetation communities have been primarily based on changes in grazing systems. Actions to improve riparian areas, and crucial winter range, have resulted in limited treatments in the past. No acres or miles were targeted and few vegetative treatments occurred. In the long term, benefits to cultural resources have resulted from the increased vegetative cover and stabilization of soils. Long-term, moderate, adverse impacts would occur in areas dominated by annual grasses that increase fire severity and frequency. Cultural resources would benefit from restrictions on grazing during the 3 to 5 growing seasons on range rehabilitation project areas. Short-term impacts could include some loss of access during the application of treatments, increased visibility and erosion. Impacts would be site specific to treatment areas and could result in minor to moderate, adverse impacts.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of importance to recognized Native American tribes. In addition, vegetation treatments and restoration would increase growth of some native vegetation important to the tribes. Actions that improve bitterbrush and crucial winter range could serve to maintain healthy wildlife populations and species of interest to the tribes. Leaving hardwoods and shrubs for the protection of perennial streams should also protect fish, wildlife, and plants utilized for traditional practices. These actions would benefit treaty resources, but the scope of treatments has been limited in the past. Impacts would be site-specific to treatment areas and could result in long-term, moderate, beneficial impacts.

Impacts from Invasive Plants and Noxious Weeds*Cultural Resources*

Past weed and invasive plant treatments have focused on biological or chemical treatments. These methods generally involve little to no surface-disturbance and therefore have fewer impacts on cultural resources than surface-disturbing treatment types. Some herbicide applications can increase soil acidity, which can advance artifact deterioration. Exposure of artifacts or other archaeological resources to herbicides would be minimal; however, herbicides containing alkyl, biphenyl, or other compounds that contain C₁₂ and C₁₄ could contaminate carbon samples from exposed cultural materials commonly used for dating (Fink and Zietz 1996, p. 473). In addition, the herbicide can impact surfaces of masonry structures, pictographs, or petroglyph panels if not removed soon after exposure. When biological or chemical treatments are not successful at controlling weeds, increased erosion may occur. Impacts would be long-term, minor, and adverse in areas where cultural resources and invasive plants and/or noxious weed treatments occur. Finally, herbicide treatments eliminate vegetation, which can expose previously obscured cultural resources and make them vulnerable to looting.

Resources of Importance to Native American Tribes

Under the No Action Alternative, areas where treatments are unsuccessful could continue to contribute to the decline of plant species of interest to the tribes. If long-term impacts occur at traditional gathering areas, patterns of use may be altered and/or the availability of plants desired by the tribes may be limited. Impacts could be long-term, negligible to major, and adverse. This is dependent on the degree to which invasive plants and noxious weeds continue to spread and how successful BLM is at treating weeds with available biological and chemical treatments.

Impacts from Fisheries*Cultural Resources*

Restoring, maintaining, or enhancing a proposed 155 miles of perennial stream could increase the risk of indirect impacts to cultural resources. Short-term impacts include: loss of access, increased erosion, activity in the area and alteration of setting. Exclosures designed to benefit fish habitat would decrease impact on cultural resources and benefit their protection by decreasing site visibility and soil erosion. Impacts would be long-term, minor, and beneficial.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of importance to recognized Native American tribes. The restoration or enhancement of 155 miles of stream over the life of the plan would improve riparian areas and water quality for fish, wildlife, and plant materials of cultural interest. Short-term, adverse impacts could occur from loss of access and alteration of setting during treatment. Overall impacts would be long-term, moderate, and beneficial within the 155 mile restoration area.

Impacts from Wildlife*Cultural Resources*

No management actions are proposed under the No Action Alternative that impact cultural resources.

Resources of Importance to Native American Tribes

While management actions under the No Action Alternative would protect against a drastic decline in wildlife habitat, current trend suggest that these actions have not been specific enough to improve current habitat conditions. If a gradual reduction in wildlife habitat quality is allowed and abundance and harvestability is affected impacts would be long-term, moderate to major, and adverse.

Impacts from Special Status Species*Cultural Resources*

There are no actions proposed under the No Action Alternative that impact cultural resources.

Resources of Importance to Native American Tribes

Avoiding management actions that result in disturbance to crucial habitat for threatened, endangered, candidate, state listed and sensitive species is beneficial to species of traditional interest to the tribes. However, current trends suggest that additional actions may be needed to ensure quality habitat for these species. Impacts would be long-term, minor to moderate, and adverse where special status species important to the tribes occur.

Impacts from Visual Resources*Cultural Resources*

Visual intrusion on the setting of cultural resources must be considered in the Section 106 process and tribal consultation, regardless of VRM designation. VRM Class I and II designations provide indirect protection for cultural resources where visual setting is a contributing factor to the significance of the property or the traditional use. Risk of impacts on cultural resources in VRM Class I and II areas would also be indirectly reduced by limitations on surface disturbance in these areas. Protective benefits would directly relate to the acres classified. The No Action Alternative designates 17,918 acres as VRM I and 144,365 acres as VRM II. The benefits of these VRM Classifications would apply to approximately 38 percent of the Decision Area. Impacts would be long-term, moderate to major, and beneficial.

Resources of Importance to Native American Tribes

Protective benefits described under Cultural Resources above would also apply to providing additional protections to the scenic quality and setting of properties of traditional religious and cultural importance and locations containing traditionally used resources. Impacts would be long-term, moderate to major, and beneficial.

Impacts from Lands with Wilderness Characteristics*Cultural Resources*

No areas would be managed for wilderness characteristics outside existing WSAs under the No Action Alternative. Therefore, there would be no additional protective and beneficial impacts to cultural resource preservation from land use restrictions.

Resources of Importance to Native American Tribes

No areas would be managed for wilderness characteristics outside existing WSAs under the No Action Alternative. Therefore, there would be no additional protective and beneficial impacts on treaty resources/traditional resources important to Native American tribes.

Impacts from Forestry and Woodland Products*Cultural Resources*

Under the No Action Alternative, forest harvest would continue on 25,353 acres with a focus on timber production. An emphasis on commercial forest harvest could increase the risk of impacts to cultural resources through ground-disturbance, erosion, changes in setting, increased access, visibility, and activity in the vicinity of these resources. Commercial harvest treatments would have more risk in general of impacting cultural resources than smaller-scale forest health treatments. However, large projects often result in the identification and protection of cultural resources that is helpful to resource protection and management. Impacts would be long-term, and range from minor and adverse to moderate and beneficial.

Resources of Importance to Native American Tribes

Commercial harvest systems used to achieve harvest targets would have an increased risk for negatively impacting traditional resources utilized by the tribes, including big game, as well as access to such resources. If projects result in a decline of the access to or abundance and harvestability of desirable woodland resources, impacts could be minor to moderate and adverse.

Impacts from Livestock Grazing*Cultural Resources*

At watering and salting locations, corrals, pipelines, and along fence lines, livestock grazing can have long-term, accumulative, adverse effects on cultural resources through direct disturbance and erosion (Coddington 2008; Osborn et. al. 1987). Under the No Action Alternative, 418,601 acres were authorized for grazing in the current Baker RMP (BLM 1989). Current acres authorized for grazing include 388,510. Recent data suggest that 58 percent of allotments that have been evaluated for Standards of Rangeland Health are not meeting these standards due to impacts from livestock grazing. The No Action Alternative has the potential to allow for continued site-specific areas of degradation within allotments not meeting standards. When unidentified site-specific problems occur in conjunction with cultural resources, trampling of these resources could lead to physical damage of surface sites over time. Impacts would be long-term, moderate, adverse, and site-specific where livestock congregation and grazing management issues occur.

Resources of Importance to Native American Tribes

Livestock grazing could result in impacts to tribal uses and resources of traditional interest. Livestock grazing and trampling, particularly at watering locations, and poorly placed range improvement projects could degrade the integrity of setting and other cultural and traditionally used resources through direct disturbance and erosion. Furthermore, overuse of grazing forage can impact big game habitat and detrimentally impact big game populations as well as traditional plants grazed. If, over time, current grazing practices results in the decline of resources of traditional interest, impacts could be long-term, moderate, and adverse in site-specific gathering locations.

Impacts from Recreation*Cultural Resources*

Recreational use would likely continue to increase over the life of the RMP, which could affect cultural resources through direct disturbance, soil compaction, altered surface water drainage, erosion, intrusion to setting and access leading to vandalism and unauthorized collecting. The No Action Alternative proposes the fewest restrictive management actions that would reduce impacts on cultural, traditionally used resources and properties of traditional religious and cultural importance. Impacts could be long-term, moderate to major, and adverse.

Resources of Importance to Native American Tribes

Recreational opportunities, including fishing, hunting, wildlife viewing, and motorized use, would likely increase in the Planning Area over the life of the RMP. As recreation increases so would the risk of direct and indirect impacts to resources important to tribal use. Infrastructure that supports recreation can provide tribal members with better access to resources, but it can also increase the intensity of use leading to impacts. The No Action Alternative would not provide adequate restrictions on recreation to prevent unintentional and intentional damage to resources. Impacts would be short- and long-term, site-specific, minor to major, and adverse.

Impacts from Travel and Transportation*Cultural Resources*

The No Action Alternative designates 287,611 acres as Open to motorized vehicle use. Motorized vehicles such as OHVs are increasingly becoming popular, and it is assumed that their use would continue to increase throughout the Planning Area over the life of the RMP. Motorized use in areas designated as Open can affect cultural resources through increased contact by visitors who may, intentionally or unintentionally, damage cultural resources by direct disturbance, soil compaction and erosion, intrusion on setting, vandalism.

In a 1979 study (Lyneis et al. 1980), the BLM Study found that OHV damage has been identified as a significant source of damage to archaeological properties, second only to development. The study found that OHVs enabled artifact collectors and pothunters to access vast areas of public land that used to be relatively inaccessible. Vehicles can also facilitate the inadvertent or purposeful destruction of significant cultural features. Motorized damage to archaeological sites occurred most frequently in accessible areas close to roads and campgrounds according to the 1979 study. One recommended site protection strategy was moving roads away from archaeological sites to make them more inaccessible (Lyneis et al. 1980:146-147).

Closing 3,594 acres to motorized use under the No Action Alternative could result in harmful or beneficial impacts. While limiting access would protect resources from direct and indirect disturbance, closed areas are more difficult to monitor for illegal and destructive activities.

The No Action Alternative has an increased risk of impacting cultural resources because it allows for the most Open acres of all the alternatives. Over the life of the RMP, accumulative impacts could be long-term, moderate to major, and adverse.

Resources of Importance to Native American Tribes

Motorized use could affect cultural resources, traditionally used resources, including their habitat, and properties of traditional religious and cultural importance through direct disturbance, soil compaction, erosion, intrusion to setting, habitat modification, introduction of noxious weeds, changes in access, and vandalism. Tribal use can also be impacted by motorized use, by disrupting or precluding cultural or religious activities. The No Action Alternative provides the fewest Closed or Limited acres, thereby allowing for increased risk of impacts. If traditional resources are damaged or cultural practices disrupted, impacts could be short- and long-term, moderate to major, and adverse.

Restricting off-road motorized use could also impact tribal access and traditional uses, unless special arrangements can be agreed upon. Impacts would be negligible and long-term, as the majority of the Decision Area would be open to motorized use.

Impacts from Lands and Realty

Cultural Resources

Under the No Action Alternative lands identified for retention would include 409,153 acres and lands identified for disposal would include 20,601 acres. Changes in ownership would affect the preservation of cultural resources important to recognized tribes and local communities. The removal of federal protections would have an adverse effect on sites eligible for NRHP and would be addressed and resolved through the Section 106 and tribal consultation processes. The criteria and priorities for acquisition and disposal of land would include consideration of unique and important resources. Acquiring new lands could further enhance protection of cultural resources by applying federal protections and could facilitate access to new areas of cultural

interest. Land tenure adjustments that increase public access may also increase the risk of vandalism and unauthorized collection of cultural resources. Impacts would be long-term, and specific to the parcel acquired or disposed of and the types of resources it contains. Overall, impacts would range from moderate and beneficial to minor and adverse, after mitigation.

Demand for land use authorizations would likely increase over the life of the RMP. Authorizations such as ROWs, permits, or leases, could cause direct and indirect, long-term impacts to cultural resources and would be mitigated as appropriate under Section 106 of the NHPA. Under the No Action Alternative, Wilderness areas and Wild river segments are excluded from ROWs. Wilderness Study Areas, ACECs and Scenic and recreational river segments would be designated as avoidance areas. Cultural resources outside of the exclusion or avoidance areas have a higher risk of being negatively impacted by actions associated with land use authorizations. Impacts could be long-term, project area specific, adverse, and minor to moderate.

Acquiring additional legal access to meet management objectives would benefit the management of cultural resources within isolated parcels. Increased public access could also increase exposure of cultural resources to impacts from public use. Impacts would be long-term, and range from moderate and beneficial to minor and adverse.

Under the No Action Alternative, there are no specific actions that address withdrawal from mineral and/or surface entry for resource protection. Impacts would be long-term, site-specific adverse, and minor to moderate.

Resources of Importance to Native American Tribes

Impacts would be similar to those described under cultural resources. Changes in land tenure that remove land from federal ownership would affect tribal access to use areas, protection of tribal treaty rights, and preservation of resources important to tribes. Land tenure adjustments would be subject to further review, including government-to-government consultation. Impacts would be direct, long-term, and minor and major, depending on available access, location, and type of resources present. Acquiring new lands would have long-term, moderate, beneficial impacts by providing access, use rights, and further protecting resources of importance to local and regionally recognized tribes.

Impacts from land use authorizations would be similar to those described under the Cultural Resources section. In addition, properties of traditional religious and cultural importance could be negatively impacted by these actions. Impacts would be mitigated during government-to-government consultation. Overall, impacts would be short- and long-term, project specific, and minor to moderate after mitigation and consultation.

Acquiring additional legal access to meet management objectives would benefit the management of natural and cultural resources within isolated parcels. It would also facilitate tribal use of new

areas for traditional resource procurement. However, increased public access could also increase exposure of resources of traditional interest to impacts from public use.

Under the No Action Alternative, there are no specific actions that address withdrawal from mineral and/or surface entry for resource protection. Impacts would be long-term, minor to moderate, and project specific.

Impacts from ACEC/RNAs

Cultural Resources

The No Action Alternative continues the designation of 48,153 acres as ACECs. In general, the protection measures provided by ACEC designation serve to limit ground disturbing actions within these areas. Less ground disturbance and promotion of soil stability and ecosystem health would reduce the risk of adverse impacts to cultural resources. Impacts would be beneficial to preservation, but the No Action Alternative does not extend these protections to additional acres. Overall, impacts would be long-term, moderate, and beneficial.

Resources of Importance to Native American Tribes

Protective measures provided with ACEC designation could include restrictions on timber harvest, road construction, ROW designations, livestock grazing, or prescribed burning. The natural resource base utilized by local and regional recognized tribes is generally improved by goals in ACECs. Goals in these areas typically seek to protect or enhance ecosystem health, water quality, riparian function, and/or cultural land scenic values. Impacts would be long-term, moderate, and beneficial, but this alternative does not extend these protections to any additional acres.

Impacts from WSRs

Cultural Resources

No additional WSR designations are proposed. Impacts from existing WSR designations would be long-term, moderate, and beneficial for resources within designated areas.

Resources of Importance to Native American Tribes

No additional WSR designations are proposed. Impacts from existing WSR designations would be long-term, moderate, and beneficial for resources within designated areas.

Impacts Common to All Action Alternatives**Impacts from Soil Resources***Cultural Resources*

Measures to limit soil erosion and ground-disturbing activities under all alternatives except the No Action Alternative would enhance the preservation of cultural resources in both the short term and long term. The No Action Alternative provides less protection because it has fewer restrictions on livestock grazing and motorized use. Actions under Alternative 1-5 would reduce erosion and impacts to cultural resources by restricting motorized use on fragile soils, altering grazing systems, and conducting restoration projects on erosion prone soils. Impacts would be long-term, moderate to major, and beneficial.

Resources of Importance to Native American Tribes

Impacts would be the same as discussed for cultural resources and should result in short- and long-term benefits, through the enhancement and preservation of cultural resources, traditionally used resources, and properties of traditional religious and cultural importance. Overall impacts would be short- and long-term, moderate to major, and beneficial.

Alternative 1**Impacts from Water Resources***Cultural Resources*

Alternative 1 proposes 50 miles of restoration work, which would increase the potential for related impacts compared to the No Action Alternative. Actions to restore streams and improve water quality may risk disturbance of cultural resources through indirect ground-disturbing activities or temporary loss of access. Impacts would be short-term, negligible to minor, and detrimental in site specific restoration areas. Stream bank and water quality improvements that reduce erosion and increase stream bank stability would enhance site preservation and provide long-term, moderate, and beneficial impacts.

Where livestock grazing is found to be inconsistent with resource objectives, the exclusion of livestock would result in long-term, minor to moderate, beneficial impacts by reducing surface and subsurface disturbance on cultural resources within these specific areas.

A reduction in roads in riparian areas would result in both short- and long-term, minor to moderate, beneficial impacts on cultural resources by reducing surface and subsurface disturbances and stabilizing soils from vegetation growth and reduction in surface water drainage.

Resources of Importance to Native American Tribes

Stream bank restoration would have short-term, negligible to minor impacts on cultural resources, traditionally used resources, and properties of traditional religious and cultural importance. Actions could also result in the short-term loss of tribal access to previously described resources. Stream restoration, RMA buffers, and road closures that reduce erosion would enhance site and resource preservation. Improvements in water quality would enhance traditional use areas. Overall, impacts would be long-term, minor to moderate, beneficial in restoration areas.

Impacts from Vegetative Communities*Cultural Resources*

Alternative 1 proposes more rangeland restoration and vegetation treatment projects than the No Action Alternative. Wyoming big sagebrush habitat would be reclaimed at a 2:1 ratio (2 acres improved for every 1 acre lost). Prescribed fire would be used to restore a landscape mosaic of sagebrush cover in Mountain big sagebrush communities, firebreaks between non-native annual grass and native Wyoming big sagebrush, and 1,500-2000 acres of new seedings are proposed. This could increase short-term impacts due to loss of tribal access during treatment or from indirect ground-disturbing activities, including; increased erosion, visibility, changes in setting and activity in the area. Restoration projects would also provide long-term benefits if soil stability increased, visibility decreased and/or erosion potential is reduced. After mitigation, impacts should range from long-term, minor to moderate, and adverse to beneficial, depending on the success of the treatment within restoration areas.

Compared to the No Action Alternative, Alternatives 1 would have an increased emphasis on restoration through vegetation treatment. The No Action Alternative only proposes a modification to the grazing system, but does not emphasize plantings, seedings, re-contouring and/or control of undesirable vegetation. These actions could increase the risk of short- and long-term impacts to cultural resources through increased visibility, changes in setting, erosion, activity in the area, and temporary loss of access. Riparian restoration projects and stubble height requirements would provide long-term, minor to moderate benefits to soil stability and increased vegetation, which benefit cultural resources through decreased visibility. After mitigation, impacts could range from minor and adverse to moderate and beneficial, depending on the success of the treatment.

Juniper treatments could result in both beneficial and adverse impact to cultural resources. The degree of risk to cultural resources would directly relate to the number of acres treated. This alternative proposes the treatment of 5,000-20,000 acres over the life of the RMP. Beneficial impacts would result from cultural surveys, site identification and protection of resources within the proposed project areas. Impacts would be long-term, minor, and range from adverse to major and beneficial.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of tribal importance. Reduction in access to areas selected to maintain or improve sagebrush communities of Wyoming big sagebrush could impede motorized access by tribal members. If motorized access arrangements cannot be agreed upon, these road closures could have long-term, adverse impacts on tribal access to important cultural, traditionally used resources and properties of traditional religious and cultural importance (See Resources of Interest to Native American Tribes MA3). Improvements to vegetation, including bitterbrush planting, hardwoods, and riparian vegetation would have long-term, moderate, beneficial impacts to treaty resources.

Impacts from Invasive Plants and Noxious Weeds*Cultural Resources*

This alternative proposes an increase in small, but intensive restoration activities. The addition of these ground-disturbing restoration projects would increase the risk of short- and long-term, indirect impacts, including erosion, increased visibility, and activity near cultural resources. Restoration activities under this alternative may be more successful at controlling weeds and may lead to an increase in native vegetation and soil stability compared to the No Action Alternative. Overall, impacts from restoration actions would be beneficial and minor to moderate, with long-term benefits to site stability and erosion control in treated areas.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of cultural importance to recognized Native American tribes. In addition, prioritizing treatment areas under Alternative 1 should result in beneficial impacts for controlling invasive and noxious weeds in areas containing plants of traditional cultural interest. Impacts would be short- and long-term, moderate, and beneficial.

Impacts from Fisheries*Cultural Resources*

Stream restoration actions are discussed in the Water Resources section. The removal of all fish migration barriers could have short- and long-term, indirect impacts to cultural resources downstream from where removal activities occur. Impacts could be negligible to minor and adverse in areas adjacent to removal. An emphasis on riparian exclosures would benefit cultural resources by limiting direct physical impacts, encouraging stable soils and decreasing visibility with thick vegetative cover. Overall impacts would be long-term, and range from minor and adverse to moderate and beneficial.

Resources of Importance to Native American Tribes

Projects to enhance or restore culturally significant plant and fish habitat, remove fish migration barriers, and improve riparian habitat would provide long-term, beneficial impacts to resources of traditional interest. Short-term, adverse impacts would occur due to a temporary loss of access and alteration of setting. Overall impacts would be long-term, moderate, and beneficial within restoration areas.

Impacts from Wildlife*Cultural Resources*

A reduction in roads and trails in restoration and conservation watersheds would have both short- and long-term, indirect, moderate, beneficial impacts on cultural resources. These benefits would result from a reduction in surface and subsurface disturbances, reduction in surface water drainage and an increase in soil stabilization due to vegetation growth. Under this alternative, any improvements to big game and upland game habitats would have short- and long-term, moderate, beneficial impacts to cultural and tribal resources.

Restoration treatments of 50 acres per year in big game habitat or where native hardwoods and mountain shrubs are declining could increase the risk of short-term indirect impacts including, but not limited, to increased erosion, visibility, changes in setting and activity near cultural resources. Long-term impacts from restoration would include soil stabilization and increased vegetation. Overall impacts would range from minor and adverse, to moderate and beneficial in restoration areas.

Resources of Importance to Native American Tribes

Actions that protect big game and sage-grouse habitat by seasonal closures and decommissioning roads and trails could result in limiting tribal access to traditional use areas, traditionally used resources, and properties of traditional religious and cultural importance. Impacts to tribal access would be minor to moderate if mitigating arrangements cannot be agreed upon. Tribes that exercise their treaty rights to hunt big game could benefit from these restrictions if they result in increased big game populations. Any land acquired to promote wildlife habitat connectivity would be beneficial to treaty resources. Overall impacts would be long-term, moderate, and beneficial.

Impacts from Special Status Species*Cultural Resources*

Actions proposed under Alternatives 1 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. Impacts would be long-term, moderate, and beneficial.

Resources of Importance to Native American Tribes

Actions that protect sage-grouse during lekking by seasonally restricting certain road and trails could result in limiting tribal access to traditional use areas during specific times of the year. Negative impacts would be adverse and minor to moderate, but short-term (mid March to May).

The imposed 3-mile avoidance buffers for sage-grouse leks and the exclusion from development on the Virtue Flat ACEC ROW would provide additional protection of treaty resources and the viewshed by decreasing the likelihood for energy developments near culturally important areas. Impacts would be long-term, minor to moderate, and beneficial.

Impacts from Visual Resources

Cultural Resources

Visual intrusion on the setting of cultural resources must be considered in the Section 106 process and tribal consultation, regardless of VRM designation. VRM Class I and II designations provide indirect protection for cultural resources where visual setting is a contributing factor to the significance of the property or the traditional use. Risk of impacts on cultural resources in VRM Class I and II areas would also be indirectly reduced by limitations on surface disturbance in these areas. Protective benefits would directly relate to the acres classified. Alternative 1 designates VRM I as 18,543 acres and VRM II as 241,779 acres. The benefits of these VRM classifications would apply to 60 percent of the Decision Area. Impacts would be long-term, major, and beneficial.

Resources of Importance to Native American Tribes

Protective benefits described above under Cultural Resources would also provide additional protections to the scenic quality and setting of TCPs, traditionally used resources. Impacts would be long-term, major, and beneficial.

Impacts from Lands with Wilderness Characteristics

Cultural Resources

Under Alternative 1, 9,615 acres would be managed to protect wilderness characteristics. In general, restrictions that protect wilderness characteristics provide protection to locations with cultural resources by limiting ground disturbing activities, ROWs, surface occupancy, and mineral material sales and increasing VRM classifications. Limiting motorized and mechanized uses would result in decreased impacts from recreation use and unauthorized uses. However, law enforcement could be difficult in such remote areas, which could lead to an increase in

vandalism or unauthorized uses in certain locations. Overall, management direction for wilderness characteristics would have moderate to major and beneficial impacts to protecting cultural resources within the areas managed for wilderness characteristics.

Resources of Importance to Native American Tribes

Impacts would be similar to those identified above for cultural resources, with the exception that limitations on motorized or mechanized travel could impact access to treaty resources and traditional use areas by tribal members, unless arrangements can be agreed upon. Impacts to tribal access could be moderate to major and negative if access arrangements cannot be agreed upon (See Chapter 2, Table 2.13, MA 3). Overall, management direction for wilderness characteristics would have moderate to major beneficial impacts to protecting treaty resources within the areas managed for wilderness characteristics.

Impacts from Forestry and Woodland Products

Cultural Resources

Compared to the No Action Alternative, Alternative 1 would decrease the risk of indirect impacts such as erosion, changes in visibility, inadvertent damage, changes in setting, increased activity, and vandalism. Proposed treatments under Alternative 1 are smaller in scale (5000 acres every 10 years) and focus mostly on thinning treatments to achieve forest health goals. These types of treatments should better protect soil stability, reduce susceptibility to wildfire, and maintain vegetative cover that serves to protect cultural resources. Impacts would be long-term, with adverse impacts ranging from negligible to minor, while beneficial impacts would be major.

Resources of Importance to Native American Tribes

Smaller scale forest health treatments designed to achieve forest health goals would decrease the risk of impacts to cultural resources, traditionally used resources, and properties of traditional religious and cultural importance. An emphasis on promoting a healthy forest environment, as opposed to an emphasis on products, should benefit vegetation, fish, and wildlife of importance to sustaining traditional ways of life. Overall, impacts would be long-term, moderate to major, and beneficial.

Impacts from Livestock Grazing

Cultural Resources

Alternative 1 authorizes grazing on approximately 388,310 acres with an estimated 41,500 AUMs proposed after implementation. Impacts would be similar to those described under the No Action Alternative, except the total number of AUMs would be reduced by approximately 5,500. This reduction could help to reduce site-specific grazing impacts to cultural resources.

Grazed areas not meeting rangeland health standards are more likely to have site-specific impacts to cultural resources. When unidentified site-specific problems occur in conjunction with cultural resources, trampling of these resources could lead to physical damage of surface sites over time. Actions that improve rangeland health include monitoring stubble heights targets for riparian zones and resting pastures for 5 years if standards are not met after two evaluations (See Livestock Grazing MA 14). These actions would help reduce the risk of long-term, adverse impacts to cultural resources. When compared to the No Action Alternative, Alternative 1 contains more actions that would increase protection for cultural resources by reducing the potential for site-specific problem areas related to grazing and encouraging growth of protective vegetative groundcover. Impacts would range from long-term, minor and adverse to moderate and beneficial.

Resources of Importance to Native American Tribes

The actions described above, aimed at improving and meeting rangeland health standards would also improve vegetation and general ecosystem health for other resources of importance to recognized Native Americans. Impacts would range from minor and adverse to moderate and beneficial.

Impacts from Recreation

Cultural Resources

Actions proposed under Alternative 1 that limit the number of passengers allowed per day on the Wallowa and Grande Ronde Rivers (for motorized commercial and private boats), improve facilities based on public and administrative demands, and modify recreational use where inconsistent with resource objectives would help to decrease the risk of impacts to cultural resources. Compared to the No Action Alternative, Alternative 1 would have long-term, moderate, beneficial to minor, adverse impacts to cultural resources.

Resources of Importance to Native American Tribes

The above impacts for cultural resources would also apply to resources of importance to recognized Native American tribes, with the addition that recreational use could interfere with traditional uses in some areas. Negative impacts by public recreation would be less than the No Action Alternative, given the additional restrictions and a focus on modifying recreational use where inconsistent with resource objectives. Impacts would be long-term, negligible to minor, and adverse.

Impacts from Travel and Transportation*Cultural Resources*

Alternative 1 reduces the number of Open acres for motorized travel to 4,918 acres, or 1 percent of the Decision Area. Limiting the majority of motorized travel to existing roads and trails and the Virtue Flat OHV Play Area would reduce the direct physical impacts and increased erosion of cultural resources. Acres designated as Closed would increase to 83,214, or 19 percent, of the Decision Areas. Overall impacts would be negligible to minor.

Resources of Importance to Native American Tribes

Reducing the acres designated as Open to motorized travel to 4,910 acres and increasing the acres designated as Closed would reduce direct and indirect impacts to resources of traditional interest. Impacts would be negligible to minor.

Greater restrictions on motorized access would impact motorized tribal access to traditionally used resources and traditional use areas, unless arrangements can be agreed upon. Impacts to tribal access could be moderate if access arrangements cannot be agreed upon.

Impacts from Lands and Realty*Cultural Resources*

Alternatives 1 through 5 propose changes to land tenure including: 3,455 acres available for disposal by sale or exchange (Zone [Z] 3), 20,204 acres available for exchange (Z-2), and 404,767 acres targeted to retain (Z-1). Overall, impacts as described under the No Action Alternative would range from major and beneficial to negligible to major and adverse on properties with cultural resources that are released from federal ownership.

Alternative 1 proposes 71,052 acres of exclusion areas for all land use authorizations. Exclusion areas under this alternative include WSAs, WSR corridors, Joseph Creek WSR, Oregon Trail ACEC, Virtue Flat ACEC, and lands with wilderness characteristic. Impacts from exclusion areas would be beneficial and long-term for cultural resource preservation due to the exclusion of most surface disturbing activities.

Under Alternative 1, avoidance areas consist of 42,901 acres and include areas containing special status species, cultural sites, ACECs, NHOTIC scenic viewshed, relic sites and Coyote Peak. This could reduce ground-disturbing land use authorizations within these areas. Impacts would be moderate to major and beneficial.

The 3-mile avoidance area for wind development around all sage-grouse leks (77,329 acres) would reduce the risk of soil disturbance, inadvertent cultural resource disturbance and/or viewshed changes on 77,329 acres.

Under Alternatives 1-5, emphasizing the use of existing disturbance areas for ROWs, leases and permits would be beneficial to cultural resources protection by limiting areas of new disturbance and focusing projects in already disturbed areas.

Designation of the 3,500 foot wide I-84 energy corridor along I-84 would increase the risk of new or additional disturbance to any cultural resources within this corridor, including the Oregon National Historic Trail and associated viewshed.

Acquiring additional legal access to emphasize BLM management would benefit the management of cultural resources within isolated parcels. If public access is obtained, it could also increase exposure of cultural resources to impacts from public use.

The withdrawal of WSAs, Auburn Town Site, Amelia Town Site, ACECs, and Federally Listed Species Critical Habitat from mineral entry would help reduce the risk of impacts from mining on cultural resources. Withdrawal from mineral entry of historic mining sites such as Auburn Town Site and Amelia Town Site would provide additional protections that would allow for long-term protection, interpretation, and/or historical research within these areas of critical importance to local history.

Resources of Importance to Native American Tribes

The above impacts to cultural resources from land use authorizations, land acquisitions, disposals, and withdrawals would also apply to resources of importance to Native American tribes, particularly where actions provide additional protection to ethnographically significant resources.

Acquiring additional legal access to emphasize BLM management would benefit the management of natural and cultural resources important to the tribes. When the BLM is not able to obtain public access, Native American tribes would not benefit from the use of traditional resources on the parcel. When public access is obtained, recognized Native American tribes would benefit from new areas for traditional resource procurement. However, increased public access could also increase exposure of resources of traditional interest to impacts from public use.

The 3-mile avoidance area for wind development around all sage-grouse leks (77,329 acres) would benefit treaty resources important to the tribes. The avoidance area could reduce weed introduction to areas containing traditional plant and disturbances to big game habitat.

Impacts from ACEC/RNAs*Cultural Resources*

Alternative 1 proposes the designation of 83,756 acres as ACECs. This alternative would designate the third largest number of ACEC acres, after Alternative 4 and 5, and would serve to reduce the risk of impacts to cultural resources by limiting types of disturbances. Impacts would be long-term, major, and beneficial to site and resource preservation.

Resources of Importance to Native American Tribes

Alternative 1 proposes the designation of 83,756 acres as ACECs. This would reduce the risk of impacts to traditional resources and properties of traditional religious and cultural importance on an additional 35,603 acres compared to the No Action Alternative. Impacts would be long-term, major, and beneficial to resource preservation.

Impacts from WSRs*Cultural Resources*

The recommendation of Joseph Creek for designation as a WSR would be beneficial to cultural resources by providing the added protections that come with that designation, including classification as VRM Class I.

Resources of Importance to Native American Tribes

Designating Joseph Creek as a WSR would be beneficial to tribal interests.

Alternative 2Impacts Same as under the No Action Alternative

- Impacts from Lands with Wilderness Characteristics
- Impacts from WSRs
- Impacts from Forestry and Woodland Products

Impacts Same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fisheries

Impacts from Water Resources*Cultural Resources*

Restoration impacts would be similar to those described under Alternative 1, although impacts would not be as widespread due to 30 fewer miles of stream being restored every ten years. Increased risk of erosion on 30 miles of stream due to lack of treatment would reduce long-term, beneficial impacts to soil stability, and there would be short-term impacts from ground-disturbing activities and temporary loss of access during treatment.

Impacts from the exclusion of livestock would be the same as Alternative 1.

Impacts from roads identified to be decommissioned or rerouted would be negligible.

Resources of Importance to Native American Tribes

Impacts would be similar to those described under Alternative 1, although they would be less widespread due to fewer miles of restoration, fewer road closures, and smaller RMA buffers.

Compared to Alternative 1, this alternative would be less beneficial to resources of importance to Native American tribes because fewer miles of riparian restoration habitat would be restored. Fewer road closures would mean better access for non-natives to harvest riparian plants species important to Native Americans. As compared to Alternative 1, smaller RMA buffers would provide less protection to fish and plant species of tribal interest. Overall, impacts would be beneficial and minor to moderate.

Impacts from Vegetative Communities*Cultural Resources*

Alternative 2 would be similar to Alternative 1, except this alternative proposes a 1:1 ratio of Wyoming big sagebrush restoration and 1,500 acres of new seedings in annual dominated grasslands. This could reduce short-term impacts due to loss of access during treatment or from indirect ground-disturbing activities including increased erosion, visibility, changes in setting and activity in the area. If AUMs increase due to successful sagebrush reduction treatments, then impacts to cultural resources could also increase because more livestock may be present. Impacts would be minor to moderate.

Impacts from riparian restoration activities would be the same as Alternative 1, except a reduction in stubble height requirements would increase visibility and reduce soil stability. These factors would result in short- and long-term, indirect impacts to cultural resources. Impacts would be site-specific and would range from minor to major.

Impacts from forest and woodland treatments would be the same as Alternative 1.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of cultural importance to recognized Native American tribes. A decreased emphasis in Wyoming big sagebrush connectivity would result in maintaining or increasing access to important resources for tribal members. The implementation of restorative treatments where hardwoods and mountain shrubs are declining would provide a short-term benefit to treaty resources, but would be a long-term, adverse impact when these commodities are saleable. Overall, impacts would be long-term, minor to moderate, and adverse.

Impacts from Wildlife*Cultural Resources*

Under this alternative, only the roads and trails that do not conflict with commodity resources could be decommissioned. This action would be less beneficial to cultural resources than Alternative 1. Under this alternative, no restoration treatments are proposed, and this lack of action would have negligible, short-term, beneficial impacts, and minor to moderate, long-term, adverse impacts.

Resources of Importance to Native American Tribes

Actions that protect big game and sage-grouse habitat by seasonal closures and decommissioning roads and trails, where this does not conflict with commodity production, could result in limiting tribal access to traditional use areas, traditionally used resources, and properties of traditional religious and cultural importance. Impacts to tribal access would be minor if mitigating access arrangements cannot be agreed upon. Tribes that exercise their treaty rights to hunt big game could benefit from these restrictions if they result in increased big game populations. No land acquisitions to benefit connectivity are proposed. Overall impacts would be long-term, minor to moderate, and beneficial, but less beneficial than Alternative 1.

Impacts from Special Status Species*Cultural Resources*

Impacts would be the same as described under Alternative 1.

Resources of Importance to Native American Tribes

Impacts would be similar to those described under Alternative 1, with the exception that sage-grouse buffers would be reduced to 2 miles and Virtue Flat would not be excluded from ROW developments. These restrictions would be more beneficial to resources of tribal interest than the No Action Alternative, but not as beneficial as Alternative 1.

Impacts from Visual Resources

Cultural Resources

Visual intrusion on the setting of cultural resources must be considered in the Section 106 process and tribal consultation, regardless of VRM designation. VRM Class I and II designations provide indirect protection for cultural resources where visual setting is a contributing factor to the significance of the property or the traditional use. Risk of impacts on cultural resources in VRM Class I and II areas would also be indirectly reduced by limitations on surface disturbance in these areas. Protective benefits would directly relate to the acres classified as VRM I and II. Alternative 2 designates VRM I as 17,918 acres and VRM II as 109,096 acres. The benefits of these VRM classifications would apply to 29 percent of the Decision Area. Impacts would be long-term, moderate to major, and beneficial, which is similar to the No Action Alternative.

Resources of Importance to Native American Tribes

Protective benefits described under Cultural Resources above would also apply to providing additional protections to the scenic quality and setting of properties of traditional religious and cultural importance and traditionally used resources.

Impacts from Livestock Grazing

Cultural Resources

Under Alternative 2, authorized grazing would occur on approximately 396,210 acres an estimated 47,350 AUMs after full implementation of the RMP. A reduction of 22,391 acres and 8,087 AUMs should help to reduce site-specific grazing impacts on cultural resources compared to the No Action Alternative, but would not be as beneficial as Alternative 1.

Grazed areas not meeting rangeland health standards would not have a mandatory 5-year rest period. This could reduce the incentive to maintain healthy rangelands and would not provide as much time for the recovery of vegetation and soil stability in areas experiencing site-specific problems. Overall, actions under Alternative 2 would be less beneficial to cultural resources than Alternative 1, but more protective than the No Action Alternative. Impacts would be moderate.

Resources of Importance to Native American Tribes

The actions described above, which are aimed at improving and meeting rangeland health standards, would also improve vegetation and general ecosystem health for resources of importance to recognized Native Americans. Overall, actions proposed under Alternative 2 would be less beneficial to these other resources action proposed under Alternative 1, but more protective than the No Action Alternative. Impacts would be moderate.

Impacts from Recreation

Cultural Resources

Protective actions would be similar to Alternative 1, except fewer passengers would be allowed per day on the Wallowa and Grande Ronde Rivers (for motorized commercial and private boats) and recreational use would be limited where inconsistent with resource objectives. However, actions under this alternative encourage land and water based amenities and more motorized, non-motorized, and mechanized use. These actions would attract a greater number of visitors, which would lead to more impacts as described above. As compared to the No Action Alternative, Alternative 2 proposes more protective actions, but fewer protections than Alternative 1. Overall, impacts would be long-term, minor to moderate, and adverse.

Resources of Importance to Native American Tribes

Impacts from recreation management under Alternative 2 would be similar to Alternative 1, but could increase public access and visitation to recreation areas where amenities are increased and motorized and mechanized recreation is emphasized. This could result in the increased risk for conflicts between public recreational uses and tribal uses. Impact would generally be short- and long-term, minor to moderate, and adverse.

Impacts from Travel and Transportation

Cultural Resources

Alternative 2 reduces the number of Open acres for motorized travel to 22,074 acres, or 7 percent of the Decision Area, compared to the No Action Alternative. Off-road motorized travel would be allowed in the Virtue Flat OHV Play Area, Denny Flat, and Sunday Hill. Under this alternative, 39,109 acres would be closed and 367,242 would have access Limited to existing road and trails. It is anticipated that Denny Flat and Sunday Hill would experience an increase in motorized use, which would increase the risk of long-term impacts to cultural resources in these areas. Impacts could be long-term, moderate, and adverse within the vicinity of the Denny Flat, Sunday Hill, and Virtue Flat OHV play areas. Protective mitigation would be necessary at Denny Flat.

Resources of Importance to Native American Tribes

Reducing the number of acres designated as Open to motorized travel to 22,074 acres and increasing the number of acres designated as Closed may affect motorized tribal access to properties of traditional religious and cultural importance and traditionally used resources. Impacts could be long-term, moderate to major, and adverse, unless special arrangements can be agreed upon that would allow for motorized tribal access.

Impacts from Lands and Realty*Cultural Resources*

Impacts from Land Tenure would be the same as Alternative 1.

Under Alternative 2, approximately 25,236 acres would be designated as exclusion areas for all land use authorizations. Exclusion areas under this alternative include WSAs, WSR corridors, and the Oregon Trail ACEC. Alternative 2 has fewer proposed exclusion areas and would not provide as much protection to cultural resources as Alternative 1. Impacts would be the same as the No Action Alternative, but less beneficial than Alternative 1.

The designation of avoidance areas under Alternative 2 would be similar to Alternative 1, except the NHOTIC Scenic Viewshed buffer and Wilderness Characteristic areas would not be included as avoidance areas. Oregon Trail segments within the ACEC are already protected by a Class II VRM designation. Impacts would be minor to negligible after mitigation for proposed projects.

Under Alternative 2, emphasizing the use of existing disturbance areas for ROWs, leases and permits would be beneficial to cultural resources protection by limiting areas of new disturbance and focusing projects in already disturbed areas.

Alternative 2 provides an additional 4,767 acres for the 3-mile avoidance area for wind development around all sage-grouse leks (82,096 acres). This could reduce the risk of soil disturbance, inadvertent cultural resource disturbance, and/or viewshed changes on these additional acres.

Impacts from ROWs, leases and permits would be the same as Alternative 1.

Under Alternative 2, the designation of the I-84 energy corridor to a width of 6,000 feet would increase the risk of new or additional disturbance to any cultural resources within the corridor, including to the Oregon National Historic Trail. Impacts would be minor to major and would be mitigated to reduce impacts.

Impacts from public access actions would be the same as described in Alternative 1.

Under this alternative, no additional lands would be withdrawn from mineral entry. This could increase the risk of short- and long-term impacts from mining including changes to setting, increased erosion, increased visibility, and activities in areas containing cultural resources. Alternative 2 would be less beneficial to cultural resource preservation when compared to Alternative 1. Impacts would be similar to the No Action Alternative.

Resources of Importance to Native American Tribes

The above impacts to cultural resources from land disposals, acquisitions, land use authorizations, and withdrawals would also apply to resources of importance to Native American tribes. Of particular concern would be natural resources of interest to the tribes that are not protected under Section 106; for example, parcels that contain traditional roots and foods and areas utilized for hunting or fishing, but may not be eligible for the NRHP. Alternative 2 would not be as effective as Alternative 1 in protecting natural resources of importance to the tribes from mining activities, issuance of ROWs, leases, permits, and developments that may have long-term impacts on treaty resources. Impacts from public access actions would be the same as described in Alternative 1.

The 3-mile avoidance area for wind development around all sage-grouse leks (82,096 acres) would benefit treaty resources important to the tribes. The additional 4,767 acres of avoidance area could reduce weed introduction to areas containing traditional plant and disturbances to big game habitat.

Impacts from ACEC/RNAs*Cultural Resources*

Alternative 2 proposes the designation of 34,419 acres as ACECs. This would provide 49,337 fewer acres of protection for cultural resources compared to Alternative 1. Overall impacts would be long term, minor to moderate, and beneficial.

Resources of Importance to Native American Tribes

As stated above, Alternative 2 proposes the designation of 34,419 acres as ACECs, which is 49,337 fewer acres than designated under Alternative 1. The designation of fewer acres would also mean less protection for traditional resources and properties of traditional religious and cultural importance. Impacts would be less beneficial to resource preservation compared to Alternative 1. Overall impacts from protected acreage would be long-term, minor to moderate, and beneficial.

*Alternative 3*Impacts Same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fisheries
- Impacts from Special Status Species
- Impacts from Lands with Wilderness Characteristics
- Impacts from Forestry and Woodland Products
- Impacts from WSRs

Impacts from Water Resources

Cultural Resources

Restoration impacts would be similar to those described under Alternative 1, although impacts would not be as widespread because 10 fewer miles of stream would be restored every ten years. The increased risk of erosion on 10 fewer miles of stream would result from a lack of treatment and would reduce long-term, beneficial impacts to soil stability. Short-term impacts from ground-disturbing activities could result in temporary loss of access. Impacts would be long-term, minor beneficial.

Impacts from the exclusion of livestock would be the same as Alternative 1.

Road improvements within RMAs would increase both the risk of impacts to cultural resources from recreational use and the potential for vandalism and unauthorized collection. Impacts would be long-term, minor, and adverse.

Resources of Importance to Native American Tribes

Impacts would be similar to those described under Alternative 1, although they would be less widespread due to fewer miles of restoration, fewer road closures and smaller RMA buffers.

Under this alternative, impacts would be less beneficial to resources of importance to Native American tribes because fewer miles of riparian habitat would be restored. Fewer road closures would mean better access for non-natives harvesting riparian plants species, which are important to Native Americans. Compared to Alternative 1, smaller RMA buffers would provide less protection to fish and plant species of tribal interest. Overall impacts would be long-term and range from minor and adverse to minor and beneficial.

Impacts from Vegetative Communities

Cultural Resources

Alternative 3 proposes rangeland restoration and vegetation treatments similar to Alternative 1, except with 500 fewer acres of new seedings in annual dominated grasslands.

Impacts from riparian restoration activities would be the same as Alternative 1. A reduction of riparian stubble height targets would increase visibility and reduce the protection of cultural resource when compared to Alternative 1, but would be more protective than under Alternative 2.

Impacts from forest and woodland treatments and juniper treatments would be the same as Alternative 1.

After mitigation, overall impacts should range from long-term, minor, adverse impacts to minor, beneficial impacts, depending on the success of the treatment.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of cultural importance to recognized Native American tribes. Restorative treatments in hardwood and mountain shrub communities in areas of high recreational use may be affected by recreational use. This could affect the availability of treaty resources. Overall, impacts would be long-term, minor, and adverse.

Impacts from Wildlife

Cultural Resources

Under this alternative, only the roads and trails that do not conflict with recreational use would be decommissioned. This action would be less beneficial to cultural resources than Alternative 1. Under this alternative, restoration treatments would be similar to Alternative 1, although 25 fewer acres per year are proposed for treatment.

Resources of Importance to Native American Tribes

Actions that protect big game and sage-grouse habitat through seasonal closures, and the decommissioning of roads and trails, where such actions do not conflict with recreational use, could result in limiting tribal motorized access to traditional use areas, ethnographic resources, and properties of traditional religious and cultural traditionally used importance. Impacts to tribal motorized access would be minor if mitigating arrangements cannot be agreed upon. Tribes that exercise their treaty rights to hunt big game could benefit from these restrictions if they result in increased big game populations. Any land acquired to promote wildlife habitat connectivity would be beneficial to treaty resources. Overall impacts would be beneficial, but less beneficial than Alternative 1.

Impacts from Special Status Species

Cultural Resources

Impacts would be the same as described under Alternative 1.

Resources of Importance to Native American Tribes

Impacts would be similar to those described under Alternative 1, with the exception that sage-grouse buffers would be reduced to 3 miles for occupied leks and Virtue Flat would not be excluded from ROW developments. These restrictions would be more beneficial to protecting

resources of tribal interest under this alternative than the No Action Alternative and Alternative 2, but not as beneficial as Alternative 1.

Impacts from Visual Resources

Cultural Resources

Alternative 3 designates 18,543 acres as VRM I and 247,376 acres as VRM II. This alternative has the same number of VRM Class I acres as Alternative 1 and 5,597 additional acres of VRM Class II. The benefits of these VRM classifications would apply to 62 percent of the Decision Area and provide additional protective benefits to cultural resources. Impacts from Alternative 3 would be long-term, major beneficial and would be more beneficial than the No Action Alternative and Alternative 1 and 2.

Resources of Importance to Native American Tribes

Protective benefits described under the Cultural Resources section above would also apply to providing additional protections to the scenic quality and setting of traditional use areas, traditionally used resources, and properties of traditional religious and cultural importance.

Impacts from Livestock Grazing

Cultural Resources

Under Alternative 3, impacts and rest periods would be the same as Alternative 1, except Alternative 3 authorizes grazing on approximately 8,145 fewer acres with an estimated 6,000 fewer AUMs. Impacts would be minor, but more beneficial than the No Action Alternative and Alternatives 1 and 2.

Resources of Importance to Native American Tribes

The actions described above that are aimed at improving and meeting rangeland health standards would also improve vegetation and general ecosystem health for other resources of importance to recognized Native Americans. Overall, actions proposed under Alternative 3 would be more beneficial to resources of importance to Native American tribes than actions proposed under the No Action Alternative and Alternatives 1 and 2. Impacts would be minor.

Impacts from Recreation

Cultural Resources

Under Alternative 3, passengers would be limited to 10 per day on the Wallowa and Grande Ronde Rivers (for motorized commercial and private boats). These restrictions would decrease the risk to cultural resources compared to the No Action Alternative, but would be less protection

than actions under Alternative 1, and impacts would be similar to Alternative 2. Overall impacts would be short- and long-term, minor to moderate, and adverse.

Resources of Importance to Native American Tribes

Impacts from recreation management under Alternative 3 would be similar to Alternative 1, but could increase public access and visitation to recreation areas where amenities are increased and motorized and mechanized recreation is emphasized. This could result in the increased risk for conflicts between public recreational uses and tribal uses. Impact would be short- and long-term, minor to moderate, and adverse.

Impacts from Travel and Transportation

Cultural Resources

Impacts from Alternative 3 are the same as Alternative 2, except an additional 36,065 acres would be designated as Closed. This would decrease the risk of long-term impacts to cultural resources in these areas. Impacts would be long-term, minor to moderate, and adverse.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 2, except increasing the number of acres designated as Closed may affect motorized tribal access to properties of traditional religious and cultural importance and traditionally used resources. Impacts could be moderate to major, unless special arrangements for motorized access can be agreed upon.

Impacts from Lands and Realty

Cultural Resources

Impacts from Land Tenure would be the same as Alternative 1.

Under Alternative 3, approximately 40,500 acres would be designated as exclusion areas for all land use authorizations. Exclusion areas under this alternative include WSAs, WSR corridors, Joseph Creek WSR, Oregon Trail ACEC, OHV Play Areas and NHOTIC Scenic Viewshed. The additional exclusion areas proposed under Alternative 3 would reduce potential long-term, direct and indirect impacts to cultural resources from land use authorizations. Impacts would be more beneficial than the No Action Alternative and Alternative 2, but not as beneficial as Alternative 1.

Under Alternative 3, avoidance areas consist of 35,170 acres and include areas containing special status species, cultural sites, ACECs, and Wilderness Characteristic areas. Land use authorization could be reduced within these areas with long-term, beneficial impacts. Under Alternative 3, emphasizing the use of existing disturbance areas for ROWs, leases and permits

would be beneficial to cultural resources protection by limiting areas of new disturbance and focusing projects in already disturbed areas.

Alternative 3 provides an additional 33,900 acres for the 3-mile avoidance area for wind development around all sage-grouse leks (111,229 acres total). This could reduce the risk of soil disturbance, inadvertent cultural resource disturbance, and/or viewshed changes on these additional acres. Overall, this would be more beneficial than the No Action Alternative, Alternative 1, and Alternative 2.

Impacts from ROWs, leases and permits would be the same as Alternative 1.

Impacts from the proposed energy corridor along I-84 would be the same as Alternative 1.

Acquiring additional legal access to meet recreational needs would increase the exposure of cultural resources to recreation related impacts within these isolated parcels. Increased access for Native American tribes to important cultural resources would be beneficial. Overall, impacts would be long-term, minor to moderate, and adverse.

Withdrawals proposed under Alternative 3 would have similar impacts as Alternative 1.

Resources of Importance to Native American Tribes

The above impacts to cultural resources from land acquisitions, disposals, land use authorizations, and withdrawals would also apply to resources of importance to Native American tribes. Of particular concern would be natural resources of interest to the tribes that are not protected under Section 106. Alternative 3 would be similar to Alternative 1 in protecting natural resources of importance to the tribes from mining impacts.

ROWs, leases, permits and developments may have long-term, direct and indirect impacts on treaty resources. Alternative 3 has fewer designated exclusion areas than Alternative 1, which provide less protection for properties of traditional religious and cultural importance and treaty resources.

Acquiring increased public access and the potential to create bypass roads where access cannot be acquired would benefit local and regional, recognized, Native American tribes by providing access to treaty resources that were previously inaccessible. However, increased public access also increases the risk of impacts to resources that may have been previously protected by limited access.

The 3-mile avoidance area for wind development around all sage-grouse leks (111,229 acres) would benefit treaty resources important to the tribes. The additional 33,900 acres of avoidance area could reduce weed introduction to areas containing traditional plant and disturbances to big game habitat. This alternative would be more beneficial to treaty resources than the No Action Alternative, Alternative 1, and Alternative 2.

Impacts from ACEC*Cultural Resources*

Alternative 3 proposes the designation of 47,992 acres as ACECs. Impacts would be similar to the No Action, more beneficial than Alternative 2, and would provide fewer protective acres that benefit cultural resources than Alternative 1. Overall impacts would be long term, moderate, and beneficial.

Resources of Importance to Native American Tribes

Alternative 3 proposes the designation of 47,992 acres as ACECs. This would reduce the risk of impacts to traditional resources and properties of traditional religious and cultural importance within these 47,992 acres. Impacts would be similar to the No Action Alternative, more beneficial than Alternative 2, and less beneficial than Alternative 1. Overall impacts would be long term, moderate, and beneficial.

Alternative 4Impacts Same as under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife
- Impacts from Lands with Wilderness Characteristics
- Impacts from WSRs

Impacts from Water Resources*Cultural Resources*

Restoration impacts would be similar to those described under Alternative 1, although impacts would be more widespread due to 30 additional miles of stream being restored every ten years. Decreased risk of erosion on 30 miles of stream that would result from restoration treatments would increase long-term, beneficial impacts to soil stability. Alternative 4 would also result in short-term, adverse impacts from ground-disturbing activities and temporary loss of access.

Impacts from the exclusion of livestock would be the same as Alternative 1.

A reduction in roads in riparian areas would have both short- and long-term, beneficial impacts on cultural resources by reducing surface and subsurface disturbances and stabilizing soils from vegetation growth and reduction in surface water drainage.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except the additional 30 miles of stream restoration per decade could increase benefits to cultural and traditionally used resources and traditional uses.

The potential to impact tribal access would be similar to Alternative 1; however, there may be a slight increase in the impacts to access as a result of more proposed restoration miles, larger RMA buffers, and a greater emphasis on reducing road density. Overall, impacts would be moderate.

Impacts from Vegetative Communities*Cultural Resources*

Alternative 4 proposes more rangeland restoration and vegetation treatments compared to Alternative 1, including 1000 additional acres of new seedings in annual dominated grasslands. After mitigation, impacts should range from minor and adverse to major and beneficial, depending on the success of the treatment.

Impacts from riparian restoration activities would be the same as Alternative 1, except riparian stubble height targets would apply to more riparian areas and would require the tallest stubble height compared to the No Action Alternative and Alternatives 1-3. This should have long-term, moderate to major, site-specific, beneficial impacts.

Impacts from forest and woodland treatments would increase under this alternative, with the highest benefit given to the landscape, watershed values and associated wildlife species. It would also extend treatment boundaries 200 feet beyond the apparent edge of the stand. This could increase the risk of impacts from inadvertent disturbance caused by treatments, but overall impacts should be long-term, negligible after mitigation.

Juniper treatments could result in both beneficial and adverse impact to cultural resources. The degree of risk to cultural resources would directly relate to the number of acres treated. This alternative proposes the treatment of 15,000 - 30,000 acres over the life of the RMP. Beneficial impacts would result from cultural surveys, site identification, and protection of resources within the proposed project areas. Adverse impacts could be increased erosion, increased activity, and inadvertent disturbance. Impacts would range from long-term, minor, and adverse to major and beneficial.

Resources of Importance to Native American Tribes

The above impacts to cultural resources would also apply to other resources of tribal importance. During vegetation treatment projects there could be a short-term decrease in access and the

availability of resources, but this should result in a long-term benefit to traditional resources. Impacts would be short-term, minor, and adverse.

Road closures to promote connectivity could have long-term, minor to moderate impacts on tribal motorized access to cultural, traditionally used resources, and properties of traditional religious and cultural importance. Under this alternative, forest and juniper woodland treatments would have additional benefits due to the additional number of acres treated. Overall, impacts would range from long-term, minor to moderate, and adverse, to moderate to major and beneficial.

Impacts from Fisheries

Cultural Resources

Impacts would be the same as described under Alternative 1, except benefits from the proposed expansion of exclosures would be greater.

Resources of Importance to Native American Tribes

Impacts would be the same as described under Alternative 1. The additional emphasis on the expansion of riparian exclosures could provide added beneficial protection to the habitat important to species of traditional interest to the tribes.

Impacts from Special Status Species

Cultural Resources

Impacts would be the same as described under Alternative 1, except no motorized use would be allowed in the Virtue Flat ACEC. This would increase the protection from erosion, increased activity, and vandalism. Impacts would be beneficial to preservation.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, although extended buffers would be designated around leks within ACECs.

No motorized vehicle use within Virtue Flat ACEC could affect tribal access to this area. Impacts could range from minor to major, depending on the importance of this area to tribal use and whether special access arrangements can be agreed upon while still meeting ACEC objectives.

Impacts from Visual Resources*Cultural Resources*

Alternative 4 designates 18,543 acres as VRM Class I and 247,495 acres as VRM II. The benefits of the VRM classifications would apply to 62 percent of the Decision Area and provide additional protective benefits to cultural resources. Impacts would be long-term, major, beneficial, and similar to Alternative 3.

Resources of Importance to Native American Tribes

Protective benefits described under Cultural Resources section above would also apply to providing additional protections to the scenic quality and setting of traditional use areas, traditionally used resources, and properties of traditional religious and cultural importance.

Impacts from Forestry and Woodland Products*Cultural Resources*

Under Alternative 4, impacts would be similar to those identified for Alternatives 1 – 3, except this alternative proposes an increase in the estimated number of acres treated to 2,500 acres per decade. The treatments by BLM would emphasize restoration to pre-fire suppression forest structures and improvement in forest vigor. Risk of impacts to cultural resources would range from minor to moderate and adverse, to major and beneficial.

Resources of Importance to Native American Tribes

Impacts from changes in setting, temporary changes in access, and availability of traditional resources would be minor. Beneficial impacts from increased forest vigor and improvement to overall watershed and landscape values could provide major benefits to resources of traditional interest to Native American tribes.

Impacts from Livestock Grazing*Cultural Resources*

Impacts would be similar to Alternative 1, except under Alternative 4 grazing would be authorized by BLM on approximately 334,260 acres and 30,700 AUMs with the full implementation of the RMP. Under this alternative, there are fewer grazed acres and/or fewer AUMs than proposed under Alternatives 1-3 and the No Action Alternative. A reduction in the number of grazed acres and/or AUMs would benefit cultural resources by reducing the potential surface impacts in areas of livestock congregation and trailing. Impacts would be minor under this alternative.

Resources of Importance to Native American Tribes

The actions described above, aimed at improving and meeting standards for rangeland health would also improve vegetation and general ecosystem health for other resources of importance to Native American tribes. Overall, actions proposed under Alternative 4 would be minor.

Impacts from Recreation*Cultural Resources*

Under Alternative 4 an emphasis on non-motorized recreational activities, and limiting passengers to 6 per boat per day on the Wallowa and Grande Ronde Rivers should decrease some of the risk to cultural resources. Impacts should be long-term, negligible to minor, and beneficial.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except the emphasis on low impact and non-motorized recreation could benefit resources of importance to Native American tribes. An emphasis on low-impact recreational activities and no increase in amenities and facilities could reduce physical impacts, changes to setting, and reduction in noise levels. These changes may reduce the potential for conflicts between recreation and traditional uses. Impacts would be short- and long-term, negligible to minor, and may be beneficial.

Impacts from Travel and Transportation*Cultural Resources*

Impacts from Alternative 4 would be the same as Alternative 1, except an additional 41,301 acres would be closed. This would decrease the risk of long-term impacts to cultural resources in these areas. Overall, impacts would be negligible to minor.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except increasing the number of acres designated as Closed may affect motorized tribal access to properties of traditional religious and cultural importance and traditionally used resources. Impacts could be moderate to major, unless special arrangements for motorized access can be agreed upon.

Impacts from Lands and Realty*Cultural Resources*

Impacts from Land Tenure would be the same as Alternative 1.

Under Alternative 4, approximately 74,971 acres would be designated as exclusion areas for all land use authorizations. Exclusion areas under this alternative include WSAs; WSR corridors; Joseph Creek, Oregon Trail, Virtue Flat, and Denny Flat ACECs; and lands with wilderness characteristic. The additional exclusion areas proposed under Alternative 4 could reduce potential long-term, direct and indirect impacts to cultural resources from land use authorizations. Furthermore, a 5-mile exclusion area for wind developments around all sage-grouse leks within Virtue Flat and Denny Flat ACECs (44,328 acres) would benefit the protection of cultural resources within these locations. Impacts would be more beneficial than under the No Action and Alternatives 1-3.

Impacts from avoidance areas would be similar to Alternative 1, except 160,021 additional acres are designated as avoidance areas. Impacts would be more beneficial than the No Action Alternative and Alternatives 1-3.

Under Alternatives 1-5, emphasizing the use of existing disturbance areas for ROWs, leases, and permits would be beneficial to cultural resources protection by limiting areas of new disturbance and focusing projects in already disturbed areas.

Impacts from the proposed energy corridor along I-84 would be the same as Alternative 1.

Acquiring administrative legal access would benefit the management and protection of cultural resources within isolated parcels.

Withdrawals proposed under Alternative 4 would have similar impacts as Alternative 1, except wilderness characteristic areas and relic sites would be pursued for withdrawal. The addition of these areas would provide added protections for cultural resources.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except additional exclusion areas would decrease the risk to traditional resources and traditional use areas where they coincide. Impacts would be beneficial to the protection of resources important to the tribes.

This alternative emphasizes only acquiring legal access for administrative purposes. Local and regional, recognized Native American tribes would not benefit from access acquired under this alternative.

The 5-mile exclusion area for wind development around all sage-grouse leks (44,328 acres) within Virtue Flat and Denny Flat ACECs would benefit treaty resources within these areas. The additional exclusion area could reduce weed introduction to areas containing traditional plant and disturbances to big game habitat. This alternative would be more beneficial to treaty resources than the No Action Alternative and Alternatives 1-3.

Impacts from ACEC/RNAs***Cultural Resources***

Alternative 4 proposes the designation of 93,991 acres as ACECs. This alternative would designate the largest number of ACEC acres and would serve to reduce the risk of impacts to cultural resources by limiting types of disturbance allowed within designated areas. Impacts would be long term major and beneficial to site and resource preservation.

Resources of Importance to Native American Tribes

Alternative 4 proposes the designation of 93,991 acres as ACECs. This would reduce the risk of impacts to traditional resources and possibly properties of traditional religious and cultural importance where they exist on an additional 10,235 acres compared to the Alternative 1. Impacts would be long term, major and beneficial to resource preservation.

Alternative 5Impacts Same as under the No Action Alternative

- Impacts from Invasive Plants and Noxious Weeds

Impacts Same as under Alternative 1

- Impacts from Travel and Transportation
- Impacts from WSRs
- Impacts from Lands with Wilderness Characteristics

Impacts Same as under Alternative 4

- Impacts from Water Resources
- Impacts from Fisheries
- Impacts from Visual Resources
- Impacts from ACEC/RNAs

Impacts from Vegetative Communities***Cultural Resources***

Alternative 5 proposes substantially less rangeland restoration and vegetation treatments with a focus on natural process compared to Alternative 1. Forage utilization targets would be set for light use, Wyoming big sagebrush habitat would be reseeded only by aerial broadcast, and road density would be reduced. Range improvement projects would target the same number of acres as Alternative 4, but techniques that are “light on the land” would be emphasized. Techniques

that are “light on the land” reduce the risk of inadvertent disturbance to cultural resources. However, if seedings are less successful due to application techniques, then erosion and vegetative protection could be reduced. Impacts would range from long-term, moderate to major, and adverse, to long-term, moderate to major, and beneficial, depending on success rates.

Impacts from riparian restoration activities would be the same as Alternative 4, except with additional protections in areas not grazed due to 303(d) listings.

Impacts from forest and woodland treatments and juniper treatments would be substantially less than Alternative 1 and would be limited to areas that would benefit other disciplines and riparian areas. Impact to cultural resources would be long-term, negligible, and adverse. This alternative could also result in fewer projects requiring Section 106 surveys and, therefore, would produce less data regarding cultural resources within the Decision Area.

Resources of Importance to Native American Tribes

An increased emphasis on permanent reduction of road density in native Wyoming big sagebrush could have long-term impacts to motorized access by tribal members. However, consultation should reduce the risk of closing roads that are important for practicing traditional uses, and impacts could be reduced by granting permission to closed areas on a case-by-case basis in conformance with resource objectives. Impacts would be long-term, minor, and adverse.

A reduction in treatment types and areas targeted under Alternative 5 could reduce the number of successful treatments. If this were to lead to a greater conversion of native plants to annuals over time, impacts from invasive or weedy species, and impacts to traditional gathering areas and resources, could be long-term, moderate to major, and adverse (particularly if native species desired by the tribes are affected to the point that traditional gathering patterns are altered or the availability of traditional cultural plants are limited).

Hardwoods, mountain shrubs and juniper treatments would be reduced compared to the No Action Alternative and Alternatives 1-4. This could result in fewer beneficial impacts to traditional resources in areas with hardwoods and mountain shrubs, or where junipers are affecting habitat for plants, fish, or animals of traditional importance to the tribes. Impacts would be long-term, moderate to major, and adverse.

Impacts from Invasive Plants and Noxious Weeds

Cultural Resources

Impacts would be similar to the No Action Alternative.

Resources of Importance to Native American Tribes

Impacts would be similar to Alternative 1; however, if techniques are not successful at controlling invasive species and noxious weeds, such species could invade important plant gathering areas. Major impacts would be possible if such infestations alter traditional gathering patterns or limit the availability of desirable plants.

Impacts from Wildlife*Cultural Resources*

Impacts would be the same as Alternative 1, except for an additional 35 acres of restoration treatments. Impacts would be more beneficial than Alternative 2 and 3, but less than Alternative 1 and 4.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except with an additional 35 acres of restoration treatments. Impacts would be more beneficial than Alternative 2 and 3, but less than Alternative 1 and 4.

Impacts from Special Status Species*Cultural Resources*

Impacts would be the same as those described under Alternative 1.

Resources of Importance to Native American Tribes

Alternative 5 would provide the most beneficial impacts due to the most extensive buffers around all leks and exclusion from ROW development within all ACECs. This would provide the most protective and beneficial impacts to natural and cultural resources that are important to the tribes.

Impacts from Forestry and Woodland Products*Cultural Resources*

Under this alternative, the risk of wildfire may increase, and overall forest health and tree vigor could decrease due to 2,500 fewer acres proposed for treatment than under Alternatives 1-3 and 5,000 fewer acres than under Alternative 4. Wildfires pose an immediate and detrimental risk to resources of traditional interest. Impacts could range from moderate to major, and adverse if large wildfires were to occur.

Resources of Importance to Native American Tribes

Impacts from changes in setting, temporary changes in access, and availability of traditional resources would be negligible to minor as fewer acres are targeted for treatment. However, fewer acres treated could result in fewer beneficial impacts to forest vigor, overall watershed and landscape values, and an increased risk of catastrophic wildfire. Adverse impacts could range from moderate to major if large wildfires were to occur.

Impacts from Livestock Grazing*Cultural Resources*

Impacts would be the same as Alternative 4, except Alternative 5 proposes an even larger reduction in the number of grazed acres (263,915 acres) and AUMs (22,500 at full implementation). This sizeable reduction in grazing would limit surface disturbance and would, therefore, be beneficial to cultural resources with a surface component.

Resources of Importance to Native American Tribes

Impacts would be the same as described above. A sizeable reduction in grazing under this alternative would be beneficial to resources of traditional interest.

Impacts from Recreation*Cultural Resources*

Under Alternative 5, recreational amenities and facilities would not be increased and low impact recreation would be emphasized. Overall impacts would be long-term, moderate to major, and beneficial.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 4, except with the changes described above. An emphasis on low-impact recreational activities and no increase in amenities and facilities could reduce physical impacts, changes to setting, and reduction in noise levels. These changes may reduce the potential for conflicts between recreation and traditional uses. Impacts should be short- and long-term, major, and beneficial.

Impacts from Lands and Realty*Cultural Resources*

Impacts from Land Tenure would be the same as Alternative 1.

Under Alternative 5, approximately 103,318 acres would be designated as exclusion areas for all land use authorizations. Exclusion areas under this alternative include WSAs, WSR corridors, all ACECs, NHOTIC Scenic Viewshed and Wilderness Characteristic areas. The additional exclusion areas proposed under Alternative 5 would reduce potential long-term, direct and indirect impacts to cultural resources from land use authorizations. Furthermore, a 5-mile exclusion area for wind developments around all sage-grouse leks would have long-term benefits to cultural resources protection within an additional 141,973 acres. This alternative would have the most beneficial impact for protecting cultural resources when compared with the other proposed Alternatives.

Avoidance areas under this alternative would be 3,961 acres. Under Alternatives 1-5, emphasizing the use of existing disturbance areas for ROWs, leases, and permits would be beneficial to cultural resources protection by limiting areas of new disturbance and focusing on projects in already disturbed areas.

Under Alternatives 1-5, emphasizing the use of existing disturbance areas for ROWs, leases and permits would be very beneficial to reducing the risk of impacts to archaeological and historical resources.

Impacts from the proposed energy corridor along I-84 would be the same as Alternative 1.

Impacts from withdrawal proposals would be the same as described under Alternative 4.

Resources of Importance to Native American Tribes

Impacts would be the same as Alternative 1, except additional exclusion areas would decrease the risk to traditional resources and traditional use areas where they coincide. Impacts would be beneficial to the protection of resources important to the tribes. Under this alternative, there would be no emphasis on acquiring legal access of any type. Local and regional, recognized Native American tribes would not benefit from this action.

The 5-mile exclusion area for wind development around all sage-grouse leks (141,973 acres) would benefit treaty resources within these areas. The additional exclusion area could reduce weed introduction to areas containing traditional plant and disturbances to big game habitat. This alternative would be the most beneficial to treaty resources.

Alternative 5a

Impacts Same as under Alternative 5

All impacts would be the same as described under Alternative 5, except those that relate to livestock grazing.

Impacts from Livestock Grazing*Cultural Resources*

Removing livestock grazing from the Decision Area would benefit cultural resources by eliminating areas of congregation and trailing where trampling and erosion can occur. Impacts would be long-term, site-specific, and moderately beneficial to cultural resource preservation. However, some level of trampling of cultural resources would still occur where elk, deer, or antelope congregate near water.

Resources of Importance to Native American Tribes

Riparian areas and associated traditional resources would benefit from eliminating livestock grazing and associated impacts to natural and cultural resources of traditional interest. Areas where livestock are grazing the seed source of weedy and invasive species could lead to an increase in these species and wildfire. If grazing is completely removed as a tool for vegetation management, some areas may experience a reduced quality of habitat and natural resources of traditional interest. Impacts would range from long-term, moderate to major, and beneficial, to minor to moderate and adverse, depending on the existing condition of the area.

c. Cumulative Impacts*No-Action Alternative**Cultural Resources*

Past and present actions and natural processes that have had an effect on the existing condition of cultural resources include: land tenure changes, wildfire and suppression, fuel and vegetation treatments, timber harvest, mineral and energy development, dam construction, ROWs, livestock grazing, population growth, urban development, growth in recreational uses, motorized use, closed access, special designations, wind and water erosion, decay, vandalism and unauthorized collecting or excavation. These actions have contributed to the existing condition (further described in Chapter 3) with 30 percent of documented sites in fair to poor condition, 16 percent of sites in unknown condition, and 54 percent of sites in good to excellent condition.

Present and reasonably foreseeable future actions that affect cultural resources would be similar to the actions that have affected cultural resources in the past. Cultural resource values continue to be considered through the land acquisition process and inventories are conducted when lands have been identified for disposal. In cases where resources are identified, mitigation to resolve adverse effects can preclude other management options. Acquisitions that provide better access and consolidate federal lands could facilitate better management and tribal access to properties of traditional religious and cultural importance, but could also increase site visitation by the public and adverse impacts to cultural resources.

Population growth, construction associated with urban growth, and increases in recreational use would continue to impact cultural resources through loss or disturbance, changes in setting, damage caused by incremental use, loss of access, and intrusions on site setting. Soil erosion and the exposure of cultural resources would continue in areas designated as Open to motorized use. Designating roads and trails and creating OHV play areas could help reduce these impacts by focusing this use in specific areas. However, restricting OHV to specially designated areas can be difficult to enforce especially as population and recreational use increases and the number of areas designated as Open decrease.

Actions that relate to grazing, timber harvest, and mineral development have had past and present impacts on cultural resources. Utilization of natural resources within the Decision Area is expected to remain at current or slightly elevated levels. However, impacts from grazing may decrease as data show that many youth from agricultural backgrounds are choosing occupations outside of agriculture. The Bureau of Labor Statistics projects a 21-percent decline in the number of self-employed farmers and ranchers. Many farmers and ranchers who are expected to leave this occupation include those who will retire, work part-time, or lack the means or desire to invest in equipment and modernize their farms to generate a profit (Bureau of Labor Statistics 2005). This may be supported by a decline in AUM use within the Decision Area since 2000.

Energy-development impacts are most commonly those related to dams, power lines, pipelines, and wind developments. To meet public energy needs, dams along Hells Canyon have created man-made conditions that affect cultural resources on federal, county, and private lands through incremental changes in water levels, visibility, and erosion. Current and future demand for energy developments are expected to increase within the Planning Area. Developments on federal lands are subject to Section 106 of the NHPA and adverse affects would be mitigated. However, in areas of fragmented land ownership, wind developments on private and other non-federal lands have already impacted the viewshed on federal lands containing cultural sites (including segments of the Oregon Trail), properties of traditional religious and cultural importance, and other potentially eligible sites where the viewshed is a contributing factor.

Increased wildfire frequency and fire suppression on public lands has impacted and would continue to impact cultural resources through surface and other disturbances. Cultural resources that are highly susceptible to fire may be lost altogether during catastrophic wildland fire events. Fuel and vegetation treatments can reduce the risk of impacts from wildfire, but also have some risk of impacting cultural resources. Impacts would be assessed and avoided, but identification of all resources is not possible, and some effects cannot be avoided.

There are ongoing actions by Native American tribes to assert tribal rights and traditional uses throughout the region. Tribal knowledge contributes to the management of cultural resources by providing information on the historic and current use of resources, which are important in maintaining and enhancing Native American culture. Traditional use areas and/or sacred sites can be properties of traditional religious and cultural importance that need to be treated as protected cultural resources.

Cumulative impacts from authorized and unauthorized actions in the Decision Area would be long-term, major, and adverse.

Resources of Importance to Native American Tribes

Under the No Action Alternative, past and present actions and events that have affected tribal resources include loss of setting, incremental disturbances from use or access, changes in species populations, natural processes such as erosion and weathering, loss of access to properties of traditional religious and cultural importance, vandalism, and unauthorized collection. Many of these historical affects on tribal uses would continue in the foreseeable future.

Access and use of natural and cultural resources important to the tribes which are located on public lands could be limited by land tenure adjustments that reduce public land holdings, wildland fire and suppression techniques, and/or increased energy or mineral development. Increased road construction and maintaining 287,611 acres of Open designation to motorized access would continue or even improve access, but these actions contribute to public access that leads to increased resource conflicts, vandalism, and other adverse impacts. A decrease in demand for livestock grazing permits could open areas to increased tribal uses, including livestock grazing by the tribes. Continued and improved tribal coordination efforts would ensure tribes retain or gain access to culturally significant areas.

The availability of traditionally used resources would also be affected by fluctuations in species populations. Wildland fires, plant diseases, insect infestation, noxious weed invasions, climate change, areas of poor water quality, or other habitat quality issues, as well as increases in human population and recreational use, could reduce the animal species available for hunting and the plant species available for collecting that are important for cultural or subsistence purposes. Similarly, the listing of new species under the ESA and increasing federal land and state conservation efforts could further limit access or the availability of such traditionally used resources, especially for tribes without specific treaty rights to hunt or collect those species.

Past, present and predicted future demands for energy development have increased the risk of intrusions on properties of traditional religious and cultural importance, sacred sites, and ethnographic procurement areas. Changes to landscape context, including areas of isolation and natural quiet, could be especially dramatic in areas where developments occur on lands with scattered ownership patterns.

Under all alternatives, continued and improved tribal coordination efforts would help ensure protection of specific areas from present and foreseeable future impact.

Cumulative impacts from authorized and unauthorized actions in the Decision Area would be long-term, major, and adverse.

Alternative 1*Cultural Resources*

Compared to the No Action Alternative, cumulative impacts under Alternative 1 would be reduced. A moderate amount of vegetation restoration may increase the risk of disturbance, but it could also increase soil stability if successful. Acres of areas designated as open for motorized use would be reduced compared to the No Action Alternative. This action would reduce impacts to cultural resources in the Decision Area. The exclusion of 68,085 acres from ROW developments, a reduction in acres grazed, increases in VRM Class I and IIs, and more ACEC and RNA protected acres would serve to reduce long-term, cumulative impacts in the Decision Area. Overall, cumulative impacts from authorized and unauthorized actions would be long-term, negligible to minor, and adverse.

Resources of Importance to Native American Tribes

Compared to the No Action Alternative, cumulative impacts under Alternative 1 would be reduced. A moderate amount of vegetation restoration could improve overall habitat for fish, plants, and wildlife of interest to recognized tribes. Acres of areas designated as open and Limited for motorized use would be reduced when compared to the No Action Alternative. This action would reduce impacts to properties of traditional religious and cultural importance and areas containing traditionally used resources on public lands. The exclusion of 68,085 acres from ROW developments, a reduction in acres grazed, increases in VRM Class I and IIs, and more ACEC and RNA protected acres would serve to reduce long-term, cumulative impacts and protect the original landscape context on public lands. Cumulative impacts from authorized and unauthorized actions would be long-term, negligible to minor, and adverse.

Alternative 2*Cultural Resources*

Actions under this alternative emphasize commodity production. This would result in fewer Open and Limited acres of motorized use than the No Action Alternative, but more Open and Limited acres than Alternative 1. Overall, road systems that support commodity production would be developed or maintained, exclusion areas would be the smallest with the exception of the No Action Alternative, and the energy corridor would be the largest of all the alternatives. Furthermore, fewer exclusion areas or ACECs would be designated, and no mineral withdrawals would be proposed. This alternative increases the risk of, long-term, cumulative, adverse impacts to cultural resources within the Decision Area. Cumulative impacts from authorized and unauthorized actions would be long-term, moderate, and adverse.

Resources of Importance to Native American Tribes

Actions under this alternative emphasize commodity production. This would result in fewer Open and Limited acres of motorized use than the No Action Alternative, but more Open and Limited acres than Alternative 1. Overall, road systems that support commodity production would be developed or maintained, exclusion areas would be the smallest with the exception of the No Action Alternative, and the energy corridor would be the largest of all alternatives. Furthermore, fewer exclusion areas or ACECs would be designated, and no mineral withdrawals would be proposed. This alternative increases the risk of long-term, cumulative, adverse impacts to properties of traditional religious and cultural importance and areas containing traditional resources within the Decision Area. Fewer protections and increased road activity can accumulate overtime and result in the disturbance of traditional plants, fish, and animals of interest to the tribes. Increased weeds brought in by vehicle travel could out-compete traditional plants and reduce the quality of fish and wildlife habitat. Increased noise and activity to an area could reduce the quality of habitat for wildlife and disrupt traditional cultural practices, if areas of noise and activity overlap with the areas of traditional cultural practices. Cumulative impacts from authorized and unauthorized actions would be long-term, moderate to major, and adverse.

Alternative 3*Cultural Resources*

An emphasis on recreations opportunities under Alternative 3 would increase the number of SRMAs, encourage recreational use by promoting knowledge of opportunities, build or improve facilities that promote recreation, allow more Open areas to motorized use, and promote additional OHV play areas. In the past and present, recreational use has had long-term, adverse impacts on cultural resources. Recreation, especially OHV use, often causes intentional or unintentional disturbance to cultural resources (Lyneis et. al 1980). Anticipated increases in population and demand, combined with limited ability to monitor and enforce regulations, would make protection and preservation of cultural resource within the Decision Area more difficult. Cumulative negative impacts would be less intense and extensive than under the No Action Alternative, similar to Alternative 2, and more extensive than Alternative 1. Cumulative impacts from authorized and unauthorized actions would have site-specific, long-term, moderate, adverse impacts.

Resources of Importance to Native American Tribes

An emphasis on recreational opportunities under Alternative 3 would increase the number of SRMAs, encourage recreational use by promoting knowledge of opportunities, build or improve facilities that promote recreation, allow more Open areas to motorized use, and promote additional OHV play areas. Past and present recreational use has had long-term, adverse impacts on properties of traditional religious and cultural importance, sacred sites, and areas containing traditionally used resources of interest to the tribes. Increased recreational use could result in long-term changes to the original landscape context and opportunities for quiet and solitude.

Anticipated increases in population and demand, combined with limited ability to monitor and enforce regulations, would make protection and preservation of cultural resource within the Decision Area more difficult. Cumulative adverse impacts would be less intense and extensive than under the No Action Alternative, similar to Alternative 2, and more extensive than Alternative 1. Cumulative impacts from authorized and unauthorized actions would be moderate.

Alternative 4

Cultural Resources

Actions that emphasize resource conservation and improvement through active restoration of vegetation would result in more ground disturbing actions and vegetation treatments. These actions could increase the risk of unplanned impacts, but also increase soil stability and reduce erosion. Impacts would be assessed and avoided, but identification of all resources is not possible and some effects cannot be avoided. Cumulatively, Alternative 4 would have reduced adverse impacts on cultural resources than under the No Action Alternative and Alternatives 1-3, but more than Alternatives 5 and 5a. Cumulative impacts from authorized and unauthorized actions would be long-term, minor, and adverse to major and beneficial.

Resources of Importance to Native American Tribes

Actions that emphasize resource conservation and improvement through active restoration of vegetation would result in more ground disturbing actions and vegetation treatments. These actions could improve overall resource habitat for plant and animal species important to recognized tribes. Impacts would be assessed and avoided, but identification of all resources is not possible and some effects cannot be avoided. Cumulatively, Alternative 4 would have reduced adverse impacts on cultural resources than under the No Action Alternative and Alternatives 1-3, but more than Alternatives 5 and 5a. Cumulative impacts from authorized and unauthorized actions would be minor.

Alternative 5

Cultural Resources

Under this alternative the emphasis would be placed on actions that value resource conservation. Protection measures with minimal human intervention could have the least impact or risk of impacts to cultural resources and could contribute to fewer cumulative impacts in the Decision Area. Overall, impacts would be long-term, moderate to major, and beneficial.

Resources of Importance to Native American Tribes

Under this alternative, the emphasis would be placed on actions that value resource conservation. Protection measures with minimal human intervention could result in decreased quality of the

habitat of resources of traditional interest through the increased potential for the presence of noxious weeds and invasive plants, changes in soil stability, and increased erosion. Less emphasis on recreation and decreased livestock grazing could result in improvements. Overall impacts would be long-term and range from beneficial to minor and adverse.

Alternative 5a

Cultural Resources

Cumulative impacts under Alternative 5a would be similar to those described under Alternative 5, with the exception that impacts to cultural resources from authorized livestock grazing would be eliminated, particularly in livestock congregation areas.

Resources of Importance to Native American Tribes

Direct, indirect, and cumulative impacts under Alternative 5a would be similar to those described under Alternative 5. However, under this alternative, the impacts from authorized livestock grazing on natural and cultural resources of traditional importance to Native Americans could be eliminated. Cultural, riparian, and traditional plant resources subject to impacts in livestock congregation areas could see long-term benefits. However, areas where annual grasslands increase when grazing is removed could also see a decrease in wildlife habitat quality.

Furthermore, certain federally recognized tribes have traditionally grazed cattle and horses within the Planning Area and continue with this traditional practice today. Several tribes currently hold grazing permits and have expressed interest in obtaining additional permits. Local tribes, such as the Confederated Tribes of the Umatilla Indian Reservation and the Nez Perce, reserved the rights to pasture livestock on their ceded lands in the Treaty of 1855. The removal of all grazing allotments could be in violation of the Treaty of 1855 if tribal grazing is affected. Overall, impacts could range from long-term, moderate, and beneficial to the natural and cultural resources of traditional interest to the tribes, to long-term, major, and adverse if the BLM affects reserved treaty rights.

14. VISUAL RESOURCES

Analysis of the environmental consequences of the alternatives on visual resources considered all of the resources identified in this RMP. Lands within the Decision Area were re-inventoried utilizing scenic quality, sensitivity, and distance zones to determine initial Visual Resource Inventory (VRI) classes. In some cases, existing Visual Resource Management (VRM) Classes from the current Baker RMP (BLM 1989) were used as a starting point for establishing current VRM classifications. They were then scrutinized to determine if the visual resource values of the areas still existed as classified and if similar boundaries could be utilized. Using this process, as well as this analysis of environmental consequences, this Baker RMP revision will classify all BLM managed lands into the appropriate VRM category, depending on which alternative is selected.

a. Indicators, Methods, and Assumptions***Visual Resources Indicators***

Indicators used to compare environmental consequences between alternatives were the current VRI classifications of public lands as compared to the varied lands and acres in each VRM Class under each alternative (For definitions of VRM classes, see below). Where VRI and VRM classifications differ, impacts to visual resources would result from the visual contrasts of actions that would be allowed or not allowed under the changed management class.

- **Class I Objective:** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- **Class II Objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- **Class III Objective:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV Objective:** To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Visual Resources Methods and Assumptions

Visual resource impacts are largely evaluated on a project-specific basis by evaluating the degree of change, or contrast, created within a characteristic landscape, as well as professional judgment by visual resource specialists. Activities that result in the most contrast and are most noticeable to the public are considered to have the greatest effect on the scenic quality of landscapes. Most of the effects described in this section are based on the assumption that projects proposed by other resources would be implemented within the life of this RMP. However, these proposed actions are not specifically analyzed, nor authorized, because visual contrast rating evaluations are required by BLM VRM policy and NEPA at a site specific level.

Impacts among the various alternatives were identified using best professional judgment based on the current and past inventory analyses to determine potential impacts and were assessed according to the following assumptions:

- Scenic resources would remain in demand within the Decision Area over the life of the RMP.
- Conflicts regarding projects and developments and retention of scenic beauty will increase as energy projects and development proposals increase.
- The demand for recreational use will continue to increase over the life of the RMP, increasing the value of open spaces and undeveloped landscapes.

- All activities will conform to each VRM Class, as proposed in each alternative, and will adhere to VRM requirements based on Contrast Rating Analysis at the project level.
- There may be short- and long-term effects to visual quality, depending on the action or activity.
- While VRM inventories may include all land jurisdictions and ownerships, BLM VRM decisions apply only to BLM lands.
- No actions proposed in any alternative would change a VRM class due to VRM Class objective constraints, although they may change a VRI Class consistent with the selected VRM Class.
- Since inventory data is unknown, impacts are based in part on the management classifications found in the Current Baker RMP (BLM 1989) and the 2010 VRM Inventory Classifications that are presented in Table 4-7 and Table 4-8.

Table 4-7. Comparison Between VRI and VRM Classes in the Decision Area

VRI and VRM Class	2010 VRI Acres	2010 VRI %	1989 VRM Acres	1989* VRI %	1989 VRM %
I	18,543	4%	17,923	n/a	4%
II	241,779	56%	142,915	n/a	34%
III	142,764	33%	57,354	n/a	13%
IV	25,338	6%	208,698	n/a	49%
Total	428,425		426,890		100

* VRI data from the current Baker RMP (BLM 1989) is not available.

Table 4-8 VRI Protection Percent (%) by Alternative

VRI Class	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Class I VRI Acres = 18,543 Special Areas and Scenic Quality A Buffered out to 15 miles to include Foreground, Middle ground, Background and seldom seen areas	100% 18,543 acres	96% 17,918 acres	100% 18,543 acres	100% 18,543 acres	100% 18,543 acres
Class II VRI Acres = 241,779 Scenic Quality B Buffered out to 10 miles to include Foreground, Middle ground, Background areas	100% 241,779 acres	45% 109,096 acres	102% 247,376 acres	102% 247,495 acres	102% 247,495 acres
Class III VRI Acres = 142,764 Scenic Quality C	100% 142,764 acres	156% 220,674 acres	95% 136,946 acres	112% 159,689 acres	112% 159,689 acres

Buffered out to 5 miles to include Foreground and middle ground					
Class IV VRI Acres = 25,338 (no distance buffer)	100% 25,338 acres	318% 80,738 acres	101% 25,561 acres	11% 2,698 acres	11% 2,698 acres
** Due to public sensitivity towards viewsheds within the Decision Area, all VRI Classes were captured as “High” in the Visual Sensitivity Levels.					

Magnitude of Impacts to Visual Resources

The intensities of impacts are also described, where possible, using the following guidance based on their impacts to the VRI classifications:

- Negligible:* The impact is at the lowest level of detection. There would be no measurable change to visual character within the identified VRM classification area.
- Minor:* The impact is slight but detectable, but the change would be small and, if measurable, would be localized and not affect visual character of the VRM classification area.
- Moderate:* The impact is readily apparent. There would be a measurable change that could result in a small and localized, but permanent change to visual character of the identified VRM classification area.
- Major:* The impact is severe. There would be a highly noticeable, long-term, or permanent, measurable change to visual character of the VRM classification area.

b. Impacts to Visual Resources

Impacts to Visual Resources in the Decision Area would result from actions proposed under the following resource management programs:

- Vegetative Communities
- Fire and Fuels Management
- Visual Resources
- Forestry and Woodland Products
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty

*No Action Alternative*Impacts from Vegetative Communities

No actions proposed from the management of Vegetative Communities would impact Visual Resources.

Impacts from Fire and Fuels

Prescribed fire and/or the use of wildland fire to meet resource objectives would alter the visual resources of an area. However, most of these impacts are short-term and usually of a size and location that would not detrimentally impact the viewsheds of the Decision Area or violate the VRM classifications due to the dominance of lower protective VRM classifications throughout most of the Decision Area under this alternative. Wildfire events within forest settings can be short- or long-term depending on the severity of the fire occurrence, but quickly change visually as vegetation re-establishes itself and softens the impacts of these events. Landscape would continue to be visually altered by fire over time without long-term, adverse impacts on the VRM values. Adverse, minor to moderate, short-term impacts, with some long-term components, such as burnt snags, would occur from the management of Fire and Fuels at the local level. Decision Area impacts would range from negligible to minor depending on the size and location of fire events, and would be primarily short-term.

Impacts from Visual Resources

Under this alternative, the existing VRM classifications would continue and no re-classifications to current VRI designations would occur (See Map 2.1 for area classifications). Current Visual Resources Management classifications identified under the current Baker RMP (BLM 1989) are limited in their protection of visual qualities. Most of the lands located in the Decision Area fall under lower protective levels (63 percent) of VRM class III and IV, even in areas that have high public sensitivity. It is unknown how these management classifications differ from historic inventory levels, since there is no record of those inventories from 1989. However, current inventories can provide comparisons from the past classifications of 1989 and current inventory determinations.

With the onset of developments that can significantly alter views and dominate viewsheds, as well as the ever increasing number of smaller projects that can cumulatively have the same dominating effect, these lands have become more critical to maintaining scenic quality. Under this alternative, and the existing visual classifications, the scenic quality of large areas of the Decision Area cannot be protected and would be degraded in both the short and long term. There would be long-term, moderate to major, adverse impacts from the management of Visual Resources under this alternative at the local level with minor to moderate, long-term, adverse impacts occurring at the Decision Area level.

Impacts from Forestry and Woodland Products

Higher protective VRM classification areas (Class I and II) of the Decision Area, which are usually assigned to more visually sensitive areas, would be protected from impacts under this alternative. However, for the remaining public lands that hold a lower protective classification (Class III/IV), significant impacts from projects could occur and be allowed not only to be visible to the casual observer in Class III areas, but would also be allowed to dominate the viewshed in Class IV areas. Under this alternative, viewshed integrity, quality, and quantity could be permanently altered. Although each proposed project would be analyzed at the site-specific level for impacts to visual resources, and mitigations initiated where appropriate, the current designation of Class III and IV would dictate few requirements. There would be minor to moderate, adverse, long-term impacts from the management of Forestry and Woodland Products under this alternative at the local level. Decision Area impacts would be negligible.

Impacts from Minerals Management

Unless prohibited by special designation, areas could be withdrawn from mineral entry. Where special stipulations can be imposed, impacts from minerals exploration and extraction could have detrimental impacts of the visual qualities of an area, depending on the magnitude of the operation. Existing mining facilities would continue to affect the visual resources over the long term. However, lands in the Decision Area have a strong historical base associated with mining, which are also intermixed with private lands where mining and mining activities are common components of the viewshed. Mineral exploration/development would be mitigated where appropriate under the mining law to ensure that no unnecessary degradation occurs to public lands. There would be minor to major, long-term impacts from the management of Minerals at the local level. Decision Area impacts would be negligible.

Impacts from Recreation Management

With continued increases in recreational uses across the Decision Area, and with more of these uses being associated with motorized equipment, minor to moderate impacts to the landscape would occur over time. This is primarily associated with the Open OHV classification for most of the Decision Area, which allows for unlimited cross country motorized travel. This use would begin to decrease the quality and characteristics of landscapes in certain areas as trail proliferation in all seasons of use continues and becomes more evident on a landscape scale. Minor to moderate, adverse, short- and long-term impacts would occur at the local level from the management of Recreation under this alternative. Decision Area impacts would also be short- and long-term, adverse, but only to minor in magnitude.

Impacts from Travel and Transportation management

By continuing the dominant Open classification for most of the Decision Area, which allows for unlimited cross country motorized travel (67 percent would be classified as Open, 32 percent as Limited and 1 percent as Closed), the visual quality could not be maintained in certain areas.

Existing road and trail networks would continue to see increases in motorized use throughout the life of this plan, and road/trail proliferation would continue to increase this network without control. Continued increases in the population of Oregon and adjacent states would also cause an increase in motorized recreational use. Short- and long-term, adverse impacts, ranging from minor to moderate would occur to the landscapes as road/trail proliferation expands and becomes more evident. This use, especially in flatter areas, areas with erosive soils, along riparian zones, and on steep terrains regardless of seasons, would become more visible to the casual observer. Overall, there would be minor to moderate, adverse impacts from the management of Travel and Transportation under this alternative at the local level, with negligible to minor impacts occurring at the Decision Area level. All impacts would be short- and long-term, depending on seasonal nature of use and length of time necessary to heal impacts.

Impacts from Lands and Realty Management/ROW

With little restrictions on the development of projects and facilities within the lower protective VRM classifications (Class III & IV) across the Decision Area (see Map 2.1), the allowable ROWs, energy developments, and associated facilities under land and realty management can impact visual resources at a landscape scale. In conjunction with lower protective VRM classifications and an increasing demand for developments and facilities, the visual integrity within sensitive areas of public lands are at risk. Previous inventories of the visual resources do not exist to reference the direct impacts; however, with the current sensitivity of the public towards impacts to visual aesthetics in the Decision Area, the loss of visual resources could be detrimental. Projects that would be evident to the casual observer, as well as dominating the viewshed in areas of Class III and IV, would increase over the life of this plan and could permanently alter the visual resource values. Impacts would be adverse, long-term, and range from minor to major at the local levels. Decision Area impacts would also be long-term, adverse, and would range from negligible to moderate in magnitude under this alternative.

Alternative 1

Impacts Same as Under the No Action Alternative

- Impacts from Minerals Management

Impacts from Vegetative Communities

Vegetative manipulations for improving vegetative conditions in a variety of areas could have a short-term, adverse impact (juniper thinning, forest health, seedings, etc.). However, these actions would soften over time and the result of those actions would not impact the visual resources in the long term. Additionally, in some situations these manipulations could benefit the visual quality of areas as historical vegetative components such as Aspen stands recover and add to the visual aesthetics of areas. Impacts would be adverse in the short term, but beneficial in the long term at the local level, but would be negligible. Decision Area impacts from the management of Vegetative Communities under this alternative would be negligible.

Impacts from Fire and Fuels

Impacts from fire and fuel management would be similar to those described for the No Action Alternative at both the local and Decision Area levels, except that control and suppression techniques implemented would strive to meet VRM objectives as much as possible, while still providing for public safety and other resource concerns. This added protection for visual resources would further soften the impacts of prescribed and wildfire impacts. Overall, however, the resulting impacts from fire and fuels management would not change from those identified under the No Action Alternative.

Impacts from Visual Resources

The BLM would manage land according to appropriate existing and re-inventoried VRI and VRM class designations of VRM I (4 percent), VRM II (56 percent), VRM III (33 percent), and VRM IV (6 percent; see Map 2.2). All projects, developments or other visually impacting actions would follow and adhere to the requirements of the VRM classification of the area affected. Under this alternative, projects would be mitigated to ensure that the visual integrity of the public lands would not be lost and would strive to preserve the existing character of the landscape. In some cases, projects might be excluded if mitigations could not be implemented that would effectively reduce the visual impacts to the area. Overall impacts would be beneficial, range from minor to major at the local level and be long-term. The Decision Area impacts would also be beneficial but negligible in magnitude from the management of Visual Resources under this alternative.

Impacts from Forestry and Woodland Products

Forest treatments throughout the Decision Area would be designed to meet the VRM classifications and objectives associated with the project area. Adverse impacts under this alternative would be minor and, in most cases, short-term. However, some minor beneficial impacts could result if the production of Forest and Woodland products is used in conjunction with vegetation health. These cases could result in improvements to the quality of vegetation, which can often have a direct beneficial impact on visual characteristics (i.e., converting encroaching coniferous forest to restore historical aspen stands). Class III and IV areas would be subject to greater effects due to the allowable impacts under those classifications. Although forest and woodland areas are scattered within the Decision Area, the occurrence of these resources are located in areas of higher protective VRI designations. However, through project contrast analysis, efforts would be made to minimize impacts within Class II and IV areas. Overall, adverse and beneficial impacts would be short- and long-term, and minor to moderate at the local or site-specific levels. Negligible impacts would occur at the Decision Area level.

Impacts from Recreation Management

By managing recreational activities in a manner that support visual resources, and modifying recreational activities that impact those resources, the visual integrity of the VRM classifications

would be ensured. Since most recreation activities are drawn to, at least in part, the views associated with public lands, the actions identified would also benefit the experience of recreationists, as views are protected. Impacts under this alternative would be beneficial, localized, long-term, and minor to moderate. Decision Area impacts would also be long-term, but would be negligible to minor in magnitude.

Impacts from Travel and Transportation

Under this alternative, the BLM would manage areas designated as Open, Limited, and Closed to motorized vehicles (as defined in Chapter 3 and illustrated on Map 2.10). Areas would be designated as approximately 1 percent Open, 79 percent Limited, and 19 percent Closed in order to help to reduce impacts from motorized uses on landscapes while still maintaining appropriate road and trail networks. Although the Open classification occurs within an area of VRI designation Class II, the impacts occurring within this area do not detract from the overall landscape due to location and aspect of impacts, which keep the management actions out of the view of the casual observer. These area designations would directly benefit the protection of visual and scenic characteristics of landscapes by eliminating the proliferation of roads/trails and by reducing the amount of terrain scarring, vegetation damage and seasonal scenic impacts from motorized vehicle use. Impacts under this alternative would be beneficial, minor to moderate, and both short- and long-term at the local level. Decision Area impacts would be short and long term, beneficial, but negligible to minor in magnitude from the management of Travel and Transportation under this alternative.

Impacts from Lands and Realty Management/ROW

Under this alternative, beneficial impacts would occur as efforts are made for the protection of identified visual resource values where possible for Class III and IV lands, while the qualities of Class I /II lands would be protected (see Map 2.2). Specific exclusion and avoidance areas, which often coincide with higher protective VRM classifications, offer even more protection for the visual characteristics of the Decision Area. However, all proposed projects (i.e. communication sites, utility corridors, ROWs) would be mitigated to reduce or remove visual impacts to meet the requirements of the visual classifications of the project area. In addition to these direct benefits, land tenure adjustments, which consolidate public lands, provide opportunities to acquire lands and visual resources of higher scenic qualities or character. These consolidated blocks of public lands add to the visual integrity as well as scenic qualities of the Decision Area. Impacts would be long-term, beneficial, and minor to moderate at the local level. Impacts to the Decision Area would be negligible to minor, long-term, and beneficial.

Alternative 2

Impacts Same as Under Alternative 1

- Impacts from Recreation Management
- Impacts from Fire and Fuels

Impacts from Vegetative Communities

Impacts would be the same as described under Alternative 1, except that VRM classifications under this alternative would be lower than at the levels identified under the 2010 VRI for the Decision Area. However, maintaining the VRI of landscape designations (Class I, II, III, & IV) is not required. Although the VRM classifications are lower than the identified VRI designations, the actions identified for Vegetative Communities would not violate the VRM classification levels under this alternative (see Map 2.3) in either the short or long term. Impacts would be negligible at both the local and Decision Area levels.

Impacts from Visual Resources

Impacts from VRM under this alternative would be similar to the No Action Alternative, except that this action alternative would provide the least amount of protection to the visual characteristics of public lands by minimizing the higher protective visual classifications (Class I/II) and emphasizing Class III (51 percent) & Class IV (19 percent) areas (see Map 2.3). Current demands for large scale developments, such as wind energy farms, and ROWs have major long-term impacts on the visual and scenic qualities of areas. These impacts are not only easily seen by the casual observer, but can dominate the viewshed. The lower protective VRM classifications emphasized under this alternative would support such projects and subsequently reduce the visual characteristics of the landscapes both now and for future generations. The impacts from this alternative would be long-term, adverse, and would range from moderate to major at the local level, and from minor to moderate at the Decision Area level.

Impacts from Forestry and Woodland Products

Under this alternative, the greatest amount of forestry and woodland products would be extracted, creating the larger number of potential effects on visual resources in project areas. As with all alternatives, the VRM classifications and objectives would be adhered to in order to minimize the impact to visual resources. However, the lower protective VRM (Class III & IV) emphasis occurring under this alternative, in conjunction with forest and woodland product activities, would gradually shift VRIs of forested landscapes to the lower protective classifications as products are extracted. Although BMPs for forestry and woodland product developments would be implemented for all projects, as would the mitigations of VRM specific classifications, impacts would still be allowed to occur at a greater level than any other action alternatives and would be detrimental to the scenic qualities identified for those areas where the VRM Class is of lower protection than the area's VRI Class. Impacts would be adverse, moderate and long-term at the local levels. The Decision Area impacts would be negligible to minor, long-term and adverse.

Impacts from Minerals Management

Impacts would be the same as described under the No Action Alternative, except that the emphasis on commodity development under this alternative could increase the amount of

impacts occurring across the Decision Area. However, the lower protective VRM classifications under this alternative would still be followed in compliance with the mining law to meet the VRM management. Since there is no mineral potential report for the Decision Area, mineral potential is based on assumptions and professional judgment of mineral and geological specialists. Using this assumption, in general, the Decision Area has low to moderate mineral development potential. The change in VRM management under this alternative allows for more activities to occur as VRI class II areas are managed as VRM III & IV landscapes. Although mitigated to the greatest extent possible, the character of the visual resources would be reduced on these lands. Impacts would be expected to be long-term, adverse, and minor to moderate at the local levels. Decision Area impacts would be expected to be negligible.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that the OHV classifications of lands in the Decision Area would be 5 percent Open, 84 percent Limited and 9 percent Closed (see Map 2.11). This change in OHV designations for the Open areas occurs in VRI class III and IV areas, which would match the VRM direction of those areas.

Impacts from Lands and Realty Management/ROW

Impacts would be similar to the No Action Alternative, except that the VRM management classes would be modified towards Class III and IV designations (Map 2.3). Although exclusion and avoidance areas often coincide with higher protective VRM classification areas and would offer additional indirect protection of visual characteristics, these exclusion/avoidance determinations do not always overlap the lower quality, yet scenically important VRM resources. Projects could be allowed in these areas that can dominate or permanently alter the visual character of lands. Although areas of higher protective classifications would still be protected, the majority of the Decision Area landscapes could experience impacts that could be seen by the casual observer, or even dominate the landscapes. Visual impacts would be the highest under this alternative, and would be adverse, long-term, and moderate to major at local levels. The impacts to the Decision Area would also be long-term, adverse, and minor to moderate in magnitude.

Alternative 3

Impacts Same as Under the No Action Alternative

- Impacts from Minerals Management

Impacts Same as Under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Forestry and Woodland Products
- Impacts from Recreation Management

Impacts from Visual Resources

As identified under Alternative 1, no adverse, long-term impacts would be allowed to occur that would violate the VRM classification for an area. Additional benefits would be seen from the emphasis placed under this alternative for the management classifications of lands at generally higher protective levels than current VRI classes (4 percent Class I, 58 percent Class II, and 32 percent Class III; see Map 2.4), which would ensure the visual integrity of the scenic characteristics of the landscapes within the Decision Area. In addition, this alternative also includes a viewshed buffer to BLM managed lands visible from the National Historic Oregon Trail Interpretive Center. This would ensure that the important and historical views and perspectives of this specific resource are protected. Public lands that can be viewed from this facility would be classified as VRM II, regardless of distance zones or scenic quality. Impacts under this alternative would be beneficial, minor and short-term. Decision Area impacts would be expected to be negligible.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that OHV designations would be changed to approximately 5 percent Open, 77 percent Limited, and 18 percent Closed (See Map 2.12 for specific locations of open and closed areas).

Impacts from Lands and Realty Management/ROW

Impacts would be the same as described under Alternative 1, except that the NHOTIC viewshed buffer adds additional BLM acres into exclusion areas (Map 2.4). This would offer additional protection to areas that have visually important or sensitive resources.

Alternative 4

Impacts Same as Under the No Action Alternative

- Impacts from Minerals Management

Impacts Same as Under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Forestry and Woodland Products

Impacts from Visual Resources

This alternative offers the most protection for the scenic qualities of the public lands within the Decision Area by emphasizing Class I (4 percent), Class II (58 percent), and Class III (37 percent) designations (See Map 2.5). This heightened VRM protection would ensure that public lands would not be degraded from actions or developments that could be seen by the casual

observer and would not allow for projects that can dominate the viewsheds. Impacts from this alternative would be beneficial, long-term, and range from minor to major at the local levels. Decision Area impacts would also be long-term, beneficial, and moderate in magnitude.

Impacts from Recreation Management

Under this alternative, the protection of the visual resources would be the highest due to the emphasis on non-motorized and mechanized forms of recreation, which have less direct impacts on the visual resources of the Decision Area. Both the facilities required and the impacts from these forms of recreational pursuits have the least amount of impacts on visual resources and would help to ensure the protection of the landscape character. Although other forms of recreation activities would still be allowed, such as motorized uses, the areas available and levels of these activities would be reduced, as would both their short- and long-term impacts. Overall impacts from this alternative would be beneficial, minor to moderate, and both short- and long-term at the local levels. Decision Area impacts would be negligible.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that OHV classification areas would be approximately 1 percent Open, 68 percent Limited, and 31 percent Closed (see Map 2.12). This alternative would offer the most protection from the use of the travel and transportation network of BLM lands to visual resources. Authorized existing roads could, in some cases, be allowed to degrade through lack of maintenance, reduced in type of motorized use (i.e. full sized vehicles, all terrain vehicles [ATVs], utility terrain vehicles, over-snow vehicles, or other motorized vehicles), reduced in the amount of motorized access, or be decommissioned. Although these actions would impact the historic and current motorized uses of the lands in the Decision Area, it would reduce the amount of visible roads in a variety of landscapes over time. This action would help to ensure the visual characteristics of the public lands in the Decision Area.

Impacts from Lands and Realty Management/ROW

Impacts would be the same as described under Alternative 1, except that higher protective classification levels (Class I, II, & III) would be imposed over the Decision Area (Map 2.5), which would have a direct effect on the type, size, and scope of allowable projects. With very few areas being classified as VRM Class IV, no projects that could “dominate” the viewshed would be authorized. The visual integrity of public lands would be protected the most under this alternative.

Alternative 5 and 5a

Impacts Same as Under the No Action Alternative

- Impacts from Minerals Management

Impacts Same as Under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Forestry and Woodland Products

Impacts Same as Under Alternative 4

- Impacts from VRM
- Impacts from Recreation Management
- Impacts from Travel and Transportation
- Impacts from Lands and Realty Management/ROW

c. Cumulative Impacts

Past actions and management identified under the VRM classification areas established in the current Baker RMP (BLM 1989) appropriately managed the visual resources over the life of that plan. With only minor impacts to visual integrity occurring as a result of that management, the visual resources of the Decision Area have been determined to be stable, and areas determined to have unique or sensitive visual resources have been adequately protected.

Currently, with the technological and economical advances, more and more pressure is being placed on public lands. Some of these pressures, such as facility developments, energy developments, and motorized equipment capabilities, are causing increased impacts on the visual integrity of the public lands. The previous VRM designations, classified at lower protective levels than their inventoried class, no longer protect the sensitive views and general landscapes associated with communities, visual vantage points, or travel corridors. Most of the proposed projects, as well as those that have occurred in the past, are a direct result of classification standards being unable to mitigate current project demands. Although VRM designations do not impact developments on private or other public lands, the identification of sensitive areas or viewsheds would keep actions that affect public scenic views from occurring on BLM managed lands, especially when BLM lands are prominent in the immediate foreground. Cumulative impacts to the visual resources from developments on or adjacent to BLM managed lands could indirectly lower the overall quality and quantity of scenic landscapes over time. Higher protective VRM classifications for the protection of landscapes could create even greater impacts on adjacent lands that are beyond BLM mitigations as developments opportunities in these other areas would be able avoid BLM classifications.

Future demands on public lands and resources are expected to increase as the population of Oregon and adjacent states increases. Demands for energy, increases to power grids, varieties of facilities, communication sites, and recreational pursuits would also increase. All of the demands of population growth and the subsequent developments necessary to support that growth have the potential to impact the views that are experienced daily.

Alternative 1

Under Alternative 1, the classifications associated with the VRI of 2010, as well as any appropriately identified classification areas from the current Baker RMP (BLM 1989), would be implemented to adequately protect the Visual Resources of the Decision Area. The VRI and VRM classifications would match and, therefore, visual resources within the Decision Area would generally remain stable. This alternative would create appropriate designations for visual characteristics that would be implemented by all resources to ensure that their actions do not unnecessarily degrade visual resource values, while still being able to meet the multiple use demands of the public. Population growth and demands upon public lands would be appropriately offset by the classifications under this alternative and the requirements of those classifications. Overall cumulative, direct and indirect impacts from the management of this alternative on visual resources would be beneficial, long-term, and minor to major in magnitude at the local level, and negligible to moderate for the Decision Area.

Alternative 2

Under this Alternative, approximately 64 percent of the Decision Area would be managed at a VRM Class that is at lower protection levels than the current inventoried class. The visual resources of these areas would be expected to gradually shift to match their management classification as projects that meet the objectives of the lower protective classification are proposed and implemented. Special areas such as WSAs, WSRs, and some ACECs with VRM Inventory classes of I & II would be adequately protected from visual intrusions. However, the general landscape of the Decision Area that falls under an inventory classification of III or IV could be altered in either the long term or permanently. Both a resource for tourism and the attractiveness of local communities could be lost as developments begin to reduce the quality of the landscapes. In general, population growth along with technological developments would be unchecked by management and visual resources would be one of the first resources to experience degradation. Under Alternative 2, the cumulative impacts to the visual characteristics of the Decision Area at the local level would be adverse, long term, and range from minor to major, while impacts Decision Area wide would be adverse and range from minor to moderate.

Alternative 3

Impacts under this alternative cumulatively, directly, and indirectly would be the same as under Alternative 1. However, with the addition of the NHOTIC visual buffer, an additional portion of the tourism attractiveness of the area would be retained. This would aid in keeping an important resource available to current and future populations of Oregon residents, as well as providing the opportunity for travelers to experience the sights and sounds of their forefathers through the protection of the landscapes.

Alternative 4

This alternative has the greatest protective influence on the visual resources of the Decision Area. VRM classifications would be increased across the Decision Area to fully protect public lands from projects that impact visual characteristics. Highly restricting the allowable visual impacts of authorized activities, developments, or uses of public lands through VRM classifications would ensure that those resources are carried forward into the future. Population growth and demands resulting from that growth would still occur, but the mitigations required by the various visual designations would better protect the scenic qualities of the area. Cumulatively, although very protective of the public lands, this alternative would force developments onto private or other public lands outside federal mitigations. Developments, depending on their size, and scope, such as wind energy, may or may not be required to consider the impacts on adjacent public lands, and could either augment or impact the visual integrity assigned to lands under this alternative. Overall, cumulative, indirect and direct impacts to visual resource would be beneficial, long-term, minor to major at local levels, and negligible to moderate at Decision Area levels.

Alternative 5 and 5a

Cumulative Impacts to visual resources would be the same as identified under Alternative 4.

15. LANDS WITH WILDERNESS CHARACTERISTICS

Inventory maintenance for wilderness characteristics is designed to identify changes in landscape conditions that may have resulted in new lands with wilderness characteristics outside existing wilderness areas and WSAs, or in the elimination of previously identified wilderness characteristics in some areas. Within the Decision Area, the BLM has identified ten "new" areas that possess wilderness characteristics. These areas include the contiguous lands associated with the northern portion of Homestead WSA and the southern and western portions of McGraw Creek WSA (see Map 2.6), as well as eight areas adjacent to USFS potential wilderness areas. Six of the ten areas with wilderness characteristics also fall within and/or are adjacent to existing protective designations (i.e., Homestead, Hunt Mountain, South Fork Walla Walla River, and Grande Ronde River ACECs; designated WSR segments of the Grande Ronde River; and the determined WSR suitable segment of Joseph Creek). The alternatives identify which lands with wilderness characteristics would be protected for their natural condition and opportunities for solitude or primitive and unconfined recreation. A summary of the protection given by the various alternatives is as follows:

- Alternatives 1, 4, and 5: All ten units containing lands with wilderness characteristics would be protected through the following allocations:
 - ROW exclusion areas
 - VRM Class II areas
 - OHV designations as Closed or Limited to motorized vehicle use

- No Action and Alternative 2: No units containing lands with wilderness characteristics would be afforded extra protection.
- Alternative 3: Units containing lands with wilderness characteristics would receive the same protections as under Alternatives 1, 4, and 5, except that they would be designated as ROW avoidance areas instead of ROW exclusion areas.

a. Indicators, Methods, and Assumptions

Wilderness Characteristics Indicators

Indicators used to compare impacts between alternatives include: (1) the number of acres to be protected for their wilderness characteristics, (2) the level of protection associated with adjacent and/or overlapping special areas, and (3) the potential to retain wilderness characteristics based on resource management actions.

Wilderness Characteristics Methods and Assumptions

The BLM used professional judgment, staff experience, and knowledge of the Decision Area, focusing on newly identified lands with wilderness characteristics and overlapping or adjoining designations, to determine impacts to wilderness characteristics. The following assumptions regarding lands with wilderness characteristics apply to all alternatives except the No Action Alternative and Alternative 2 (under which lands with wilderness characteristics would not receive any specific protection):

- The BLM would protect lands with wilderness characteristics from actions that impact identified wilderness characteristics.
- The BLM would use the following land use allocations or management actions to protect wilderness characteristics within the 10 identified units, depending on the alternative:
 - VRM Class II designation
 - ROW exclusion or avoidance areas
 - Closed or Limited to motorized use
 - Closed or NSO leasing
 - Closed to mineral material sales
 - Retention zone for land tenure
 - No new road developments
 - Exclusion of certain commercial permits (e.g., SFPs such as post, poles, and firewood)
- The BLM would evaluate proposed projects and uses such as fuels treatments, noxious weed control, riparian or wildlife habitat improvements, livestock improvements, and commercial recreation on a case-by-case basis to ensure that actions would maintain or enhance characteristic values, or that any reductions in values as a result of projects are temporary, short-term, or would enhance wilderness characteristics over the long term.
- The BLM would recognize valid existing rights.

- The BLM would manage public lands adjacent to lands identified as having wilderness characteristics to protect those identified wilderness characteristics.

Magnitude of Impacts to Lands with Wilderness Characteristics

The intensities of impacts are also described, where possible, using the following guidance:

- Short-term impacts are noticeable from 0-5 years.
- Long-term impacts exist and are noticeable beyond 5 years.
- Due to the limited extent of identified lands with wilderness characteristics, all impacts to wilderness characteristics would occur at the local level, while all Decision Area-wide impacts would be negligible.

Negligible: The beneficial or adverse impact is at the lowest level of detection and there would be no measurable change to the unit's wilderness characteristics.

Minor: The beneficial or adverse impact is slight but detectable, but the change would be small and, if measurable, would be localized. Adverse impacts would not affect the unit's ability to meet minimum requirements for identification as lands with wilderness characteristics.

Moderate: The beneficial or adverse impact is readily apparent and there would be a measurable change that could result in a small, localized, but permanent change to lands with wilderness characteristics.

Major: The beneficial or adverse impact is severe and there would be highly noticeable, long-term, or permanent. Adverse impacts would involve a measurable impairment or elimination of the unit's wilderness characteristics.

b. Impacts to Lands with Wilderness Characteristics

Impacts to lands with wilderness characteristics in the Decision Area would result from actions proposed under the following resource management programs:

- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Wildlife
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty

- ACECs
- WSAs

Impacts Common to all Alternatives

Impacts from ACECs

Five of the areas identified as having wilderness characteristics fall within various ACEC boundaries. Specific management of each ACEC, such as excluding commercial timber harvest, limiting motorized use, protecting scenic qualities, and maintaining or improving wildlife and plant habitats, would minimize or eliminate adverse impacts that could reduce or impair wilderness characteristics. Impacts from such ACEC management would be beneficial, long-term, and range from minor to moderate.

Impacts from WSAs

Since two of the areas identified as having wilderness characteristics are contiguous with WSA boundaries, the management restrictions associated with the protection of WSA values, such as limitations on motorized uses, vegetative management, and fire suppression methods, would indirectly help protect wilderness characteristics. All impacts from the management of WSAs on the adjoining lands with wilderness characteristics would be beneficial, short and long term, and minor in magnitude.

No Action Alternative

Impacts from Vegetative Communities

Since lands with wilderness characteristics would not receive special protection under the No Action Alternative, unprotected areas with wilderness characteristics could be adversely affected by vegetation manipulation projects; however, no such projects are anticipated in those areas. The management of vegetative communities (e.g., fire restoration efforts, seedings or plantings, or rangeland improvement projects) could have adverse and/or beneficial impacts on lands with wilderness characteristics, depending on the projects implemented to meet other resource designations or objectives. Adverse impacts would be short term and due to surface disturbing activities related to treatment efforts. In the long term, the characteristic change in vegetation could improve natural qualities of these areas. In addition, overlapping and/or adjoining ACEC, VRM Class II, WSR, WSA, and USFS potential wilderness area designations under the No Action Alternative would continue to provide indirect protection of wilderness characteristics by excluding commercial timber harvest, limiting motorized use, protecting scenic qualities, and maintaining or improving wildlife and plant habitats. Overall, beneficial impacts would be short or long term and range from negligible to minor, while adverse impacts would be short term and negligible.

Impacts from Invasive Plants and Noxious Weeds

Under the No Action Alternative, no additional emphasis would be placed on noxious weed or invasive species management within lands with wilderness characteristics. On the other hand, since six areas identified as lands with wilderness characteristics overlap with and/or are adjacent to existing WSAs, WSRs, or ACECs, the impacts from noxious weeds and invasive species on these units would also require mitigation. Such actions would result in indirect, beneficial impacts to lands with wilderness characteristics and would range from negligible to minor in both the short and long term.

Impacts from Wildlife

The No Action Alternative does not propose any wildlife management actions in any areas identified as lands with wilderness characteristics.

Impacts from Fire and Fuels Management

Utilizing fire (prescribed or wild), as well as fuel reduction practices, could enhance wilderness characteristics by moving vegetative communities into more natural conditions over time. Such impacts would be beneficial, short and long term, and range from negligible to minor. On the other hand, the suppression techniques utilized (e.g., creating fire lines or re-opening historic roads/trail) could adversely impact naturalness through surface disturbing actions and the creation of roads. This, in turn, could degrade wilderness characteristics in all or portions of the areas involved. Such adverse impacts would be both short and long term and could range from minor to major.

Impacts from Visual Resources

Under the No Action Alternative, the BLM would continue to manage five of the ten areas identified as lands with wilderness characteristics within existing VRM Class II designations due to overlapping ACEC, WSR, or previous VRM designations. In the other five areas, the lack of specific management prescriptions to protect wilderness characteristics, along with the existing VRM Class III and Class IV classification, could lead to reductions in “naturalness” as the BLM implements projects. However, the No Action Alternative does not propose any projects or actions in these units. Overall, impacts would be beneficial in units in existing VRM Class I or Class II designations, and adverse in those within existing Class III and Class IV designations. Impacts would range from negligible to moderate in both the long and short term.

Impacts from Lands with Wilderness Characteristics

The No Action Alternative does not provide any specific protection of wilderness characteristics, which would result in no direct beneficial impacts. On the other hand, land management practices for the adjoining WSAs, as well as for the adjoining and/or overlapping ACEC and WSR designations, would reduce or minimize potential adverse impacts to identified wilderness

characteristics by excluding commercial timber harvest, limiting motorized use, protecting scenic qualities, and maintaining or improving wildlife and plant habitats. As a result, adverse impacts from not protecting identified lands with wilderness characteristics would be negligible in six areas with overlapping and/or adjoining protective designations. The remaining four areas without such protection (although they are adjacent to USFS potential wilderness, see Table 3.47 in Chapter 3) could experience impacts from a variety of management actions from other resource programs (e.g., road development, vegetative manipulations, ROWs, or facility developments) that could impact wilderness characteristics. Impacts to these four areas would be adverse, minor to moderate, and short and long term.

Impacts from Forestry and Woodland Products

Restrictions applied to the overlapping ACEC and WSR designations, as well as adjacent WSA and USFS potential wilderness area designations, would also apply to any forestry or woodland products projects, and mitigations placed on these projects would indirectly protect the wilderness characteristics in contiguous areas. The four areas without such protection could be adversely affected by forestry and woodland products projects, but no such projects are anticipated in those areas. As a result, impacts from the management of forestry and woodland products would be negligible.

Impacts from Livestock Grazing

Under the No Action Alternative, livestock grazing would continue to occur within lands with wilderness characteristics. Past and present management of livestock grazing has not diminished the characteristics that led to these areas meeting minimum wilderness criteria. In addition, BLM grazing practices, along with restrictions and mitigations due to overlapping and/or adjoining ACEC, WSR, WSA, and USFS designations, would continue to indirectly maintain wilderness characteristics. Overall, impacts would be negligible.

Impacts from Minerals

Due to the size and location of the identified lands with wilderness characteristics, mineral development could impact wilderness characteristics to the point that units would no longer meet minimum criteria. Based on analysis assumptions and professional judgment, the Decision Area, including lands identified as having wilderness characteristics, is deemed to have low to moderate mineral development potential. However, mineral developments exist on some adjacent private lands, indicating some likelihood that future developments could be proposed in lands with wilderness characteristics. Outside the areas afforded some protection from ACEC, WSR, and VRM Class II prescriptions, unprotected areas with wilderness characteristics could be adversely affected by minerals management. Future mineral development could cause long-term, adverse, and moderate to major impacts to wilderness characteristics, depending on the location, scope, and size of the mineral extraction activity.

Impacts from Recreation

The No Action Alternative does not propose any recreation management actions that would affect lands with wilderness characteristics.

Impacts from Travel and Transportation

The current travel and transportation direction for the Decision Area that includes the lands with wilderness characteristics varies among the identified areas. Travel in four units is Limited to existing roads and trails, which prevents any off-route travel that would impair wilderness characteristics. The remaining six areas are classified as Open for motorized uses but such use is limited due to a lack of legal access and limited road systems. Additionally, past and current off-road travel has been negligible due to terrain, topography, and amount of overall use. Anticipated future impacts would continue to be negligible.

Impacts from Lands and Realty

Due to existing ACEC, WSR, and adjacent USFS acreage, the identified lands with wilderness characteristics are contained within Z-1 retention areas. Six of these areas exist within ROW exclusion or avoidance areas due to the overlapping special designations. While the special designations both indirectly and directly offer protection for the identified lands with wilderness characteristics, lands and realty management could adversely affect the unprotected units not identified as avoidance or exclusion areas. Although no projects are proposed at this time, there is the potential for the development or expansion of ROWs. New or adjusted ROWs can change or create boundary features, which could adversely affect lands with wilderness characteristic not protected from such actions. Although lands with wilderness characteristics that adjoin or overlap with WSAs, ACECs, and WSRs are offered some indirect protection, the natural landscape, topography, and restrictions of special area designations often provides little flexibility for where an ROW can be developed. This can create situations where the only area available for the development of ROWs is via unprotected lands with wilderness characteristics. Overall, beneficial impacts from the retention or acquisition direction for the management of Z-1 lands would range from minor to moderate. Potential adverse impacts from possible future ROW or facility developments would be long term and range from moderate to major, depending on the location, scope, and size of the project.

Impacts Common to all Action Alternatives

Impacts from Wildlife

Actions identified for the protection of big game wildlife habitat areas (e.g., breeding and birthing habitats and winter range) from motorized use or other human disturbances could indirectly benefit identified lands with wilderness characteristics if such protection occurs in these areas. Although motorized use in lands with wilderness characteristics would be limited to designated roads/trails under all the action alternatives, wildlife management could require the

temporary or permanent closure of such areas to motorized or other recreational uses that disturb wildlife. Such potential motorized restrictions would indirectly improve the opportunity for solitude, as well as maintain the natural setting of the lands with wilderness characteristics, as the sights and sounds of human activity would be further reduced over time. Impacts would be beneficial, minor, and long term.

Alternative 1

Impacts from Vegetative Communities

Alternative 1 does not propose any vegetation treatments in any of the lands identified as having wilderness characteristics. However, if such treatments do occur, because all lands with wilderness characteristics would receive protection under Alternative 1, the BLM would evaluate proposed vegetation treatments on a case-by-case basis through the NEPA process to ensure that their implementation would be designed to either maintain or enhance the values of these areas over the long term. Such actions would maintain or enhance the natural setting of lands with wilderness characteristic. Designing any treatments to meet VRM Class II standards would ensure that any unavoidable, adverse impacts due to vegetative treatments would be negligible to minor and short term, with long-term impacts being beneficial and moderate.

Impacts from Invasive Plants and Noxious Weeds

The prioritization of noxious and invasive species management and control within protected areas, including lands with wilderness characteristics, would directly aid in the retention of the natural values in both the short and long term. Eliminating or controlling identified invasive species using approved methods such as herbicidal, mechanical, or biological control would create short-term noticeable adverse impacts to naturalness, but would maintain or enhance the natural values in the long term. Designing actions to meet VRM Class II objectives would have moderate beneficial impacts to wilderness characteristics. The education and dissemination of information to the public regarding the concerns and types of noxious/invasive species and the risks they pose to lands with wilderness characteristics would indirectly benefit such areas. Overall, this would result in long-term, minor to moderate, beneficial impacts.

Impacts from Visual Resources

Visual Resource management classifications under Alternative 1 would protect all of the areas identified as having wilderness characteristics as VRM Class II. Although this alternative does not propose any projects or actions that could affect visual quality in these areas, VRM Class II designation would protect lands with wilderness characteristics from visual intrusions due to potential future projects. Overall, impacts would be beneficial and range from minor to moderate in both the long and short term.

Impacts from Fire and Fuels Management

Allowing natural ignition or prescribed fire to play a natural role whenever possible in order to maintain or enhance characteristic values would aid in improving ecosystem health within lands identified as having wilderness characteristics. The BLM would need to consider fire and fuel projects or suppression efforts on a case-by-case basis, and mitigations, such as fire line development, fire intensity levels, and fuel reduction targets, would prevent or limit adverse impacts to characteristic values. Actions associated with fire and fuels management would appear to be naturally occurring and would not reduce wilderness characteristics. Overall, impacts would be beneficial, both short and long term, and minor.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, the BLM would manage all ten areas identified as having wilderness characteristics to maintain or enhance existing wilderness characteristics. The BLM would evaluate all proposed projects allowed under the management protections applied to the lands with wilderness characteristics on a case-by-case basis through the NEPA process to ensure that impacts from project implementation would not adversely impact wilderness characteristics. Impacts from management protections would be beneficial, minor to moderate, and long term.

Impacts from Forestry and Woodland Products

Impacts on lands identified as having wilderness characteristics would be similar to those identified under Impacts from Vegetative Communities, except that byproducts resulting from the management of forest communities to improve forest health could be harvested if it maintains or improves the characteristic values of these areas. These actions, if in conformance with the management protections for lands with wilderness characteristics, could have minor to moderate, short-term, adverse impacts as approved byproducts are removed, and minor to moderate, long-term, beneficial impacts as the forest communities are returned to the historic range of variability. The BLM would analyze such impacts on a case-by-case basis, would only allow such actions if they promote or, through their implementation, maintain or enhance wilderness characteristics. Overall, impacts would be beneficial, long term, and minor.

Impacts from Livestock Grazing

Under Alternative 1, the BLM would make changes to grazing practices in the lands identified as having wilderness characteristics if necessary to meet rangeland health standards. Impacts would be negligible.

Impacts from Minerals

With low potential for mineral development, lands identified as having wilderness characteristics would be available for mining of locatable minerals under Alternative 1, as long as those operations do not cause unnecessary or undue degradation to public lands. Although historic and

current mining occurs adjacent to three of the identified ten areas, mineral potential is low to moderate in these areas, as well as in the other identified lands with wilderness characteristics. Overall, impacts from the management of minerals under Alternative 1 would be negligible to minor.

Impacts from Recreation Management

Under Alternative 1, the BLM would modify recreational uses on those lands identified as having wilderness characteristics if the BLM found such uses were inconsistent with maintaining or enhancing the wilderness characteristics in those areas. For instance, if motorized primitive trails that exist in these areas begin to expand in length or quantity and adversely affect wilderness characteristics, e.g., solitude, then the BLM would apply restrictions, limitations, or cessation of these uses. Impacts would be beneficial, minor, and long term.

Impacts from Travel and Transportation

Limiting motorized use to designated roads, primitive roads, and trails, as well as closing some areas to motorized uses would reduce or eliminate the random development and proliferation of new roads and trails. In turn, this would reduce the associated increase in soil erosion, vegetation damage, and vehicular noise and help ensure the retention of wilderness characteristics. Closing certain areas to motorized uses and decommissioning roads and trails in those areas would protect and potentially enhance areas identified as having wilderness characteristics. The integrity of wilderness characteristics in these areas could be compromised in areas where motorized use would continue on roads, primitive roads, or trails due to improved maintenance, design, and redesign of the existing network. Overall, impacts from the management of travel and transportation under Alternative 1 would be minor, beneficial, and long-term.

Impacts from Lands and Realty

Identifying lands with wilderness characteristics as ROW exclusion areas would protect their wilderness characteristics from developments that can create boundary features and change unit size. Additional benefits would occur if future land acquisitions within or adjacent to lands with wilderness characteristics were obtained. If newly acquired lands also possess wilderness characteristics, they would directly benefit adjoining lands and be added to the original units, increasing their size. Indirect benefits would occur through acquisitions that do not possess wilderness characteristics by adding an additional buffer of public lands adjacent to identified lands with wilderness characteristics. Overall, impacts would be beneficial, long-term, and range from minor to moderate.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Minerals

Impacts from Fire and Fuels

Since Alternative 2 provides no specific management protection for lands identified as having wilderness characteristics, the BLM would base fire and fuel treatment projects and suppression efforts within these areas on BMPs to meet the needs or restrictions of other resources and special designations in the area. Utilizing fire (prescribed or wild), as well as fuel reduction practices, could enhance wilderness characteristics by moving vegetative communities into more natural conditions over time. Overall impacts would be beneficial, short term, and minor.

Impacts from Visual Resources

Visual Resource management would be the same as proposed under the No Action Alternative except that beneficial impacts would be more extensive as seven of the ten areas identified as having wilderness characteristics (compared to five areas under the No Action Alternative) would see indirect protection from VRM Class II or higher designations assigned to overlapping ACEC, WSR, and previous VRM designations. Overall, impacts would be adverse and range from negligible to moderate in both the long and short term.

Impacts from Lands with Wilderness Characteristics

Impacts would be similar to those described under the No Action Alternative due to the lack of special management protection for lands with wilderness characteristics. While the emphasis on the development of commodities under Alternative 2 could both directly and indirectly affect the natural character of lands with wilderness characteristics, restrictions and mitigations due to overlapping and/or adjoining ACEC, WSR, VRM Class II or higher, WSA, and USFS potential wilderness area designations would reduce the intensity of adverse impacts.

Impacts from Forestry and Woodland Products

Under Alternative 2, forestry or woodland products projects on lands identified as having wilderness characteristics would face restrictions related to the overlapping and/or adjoining ACEC, VRM Class II or higher, WSR, WSA, and USFS potential wilderness area designations. Such restrictions and mitigations placed on projects would indirectly protect the wilderness characteristics in overlapping or contiguous units. Emphasizing commodity production during forest harvesting practices and not providing specific management protection to lands identified as having wilderness characteristics could adversely affect some units through the extraction of

forest and woodland resources, which would diminish the natural character of lands with wilderness characteristics. The infrastructure needed to access forest resources, which could include the conversion of trails and motorized primitive trails back to primitive road or road status, would directly and indirectly degrade wilderness characteristics. Overall, impacts would be short and long term, adverse, and range from minor to moderate.

Impacts from Livestock Grazing

Not providing specific management protection to lands identified as having wilderness characteristics, as well as emphasizing commodity production at the expense of some values or characteristics, could result in an increase in grazing pressure. High stocking rates for grazing could directly diminish the naturalness of lands with wilderness characteristics by reducing vegetation quantity, increasing soil erosion, allowing for the spread of noxious weeds, and increasing the number of range developments such as water impoundments. It could also result in the seeding of areas to promote vegetation levels to increase livestock production. Wilderness characteristics could be indirectly affected if vegetative components of the landscape change from native to non-native as a result of the increased grazing pressure (e.g., due to an resultant increase in invasive species infestations). Restrictions and mitigations associated with the overlapping and/or adjoining ACEC, VRM Class II or higher, WSR, WSA, and potential USFS wilderness area designations would indirectly protect the wilderness characteristics in overlapping and contiguous units. Overall, adverse impacts would be long term and minor.

Impacts from Recreation

Under Alternative 2, because lands identified as having wilderness characteristics would not receive specific management protection, there would be no specific restrictions on recreation activities. However, the BLM would apply specific restrictions and mitigations on recreation activities in areas with special designations, e.g., ACEC, VRM Class II or higher, WSR, WSA, and potential wilderness area designations, which would afford some protections for lands identified as having wilderness characteristics due to the overlap and/or adjoining proximity to areas such special designations. As a result, the difference in impacts between Alternative 1 and Alternative 2 would be negligible, especially when considering that no recreation projects or actions are proposed in the identified lands with wilderness characteristics under this alternative.

Impacts from Travel and Transportation

Under Alternative 2, portions of the interim route network associated with lands identified as having wilderness characteristics could be improved to augment commodity extraction. Although the BLM proposes no actions or projects that would affect the identified lands with wilderness characteristics, they could occur under this alternative over the life of the RMP. Potential developments such as new roads, increased maintenance, and increased frequency of grading and graveling “motorized primitive trails” to the level of being classified as “primitive roads” or “roads” could detract from the naturalness of the identified lands with wilderness characteristics, or could create new boundary features that reduce the size of the areas. While

these activities would still be subject to the mitigations of overlapping and/or adjoining designations, the potential for adverse impacts would remain. Overall, such adverse impacts would be long term and range from minor to moderate.

Impacts from Lands and Realty

Impacts would be similar to those described under the No Action Alternative, although adverse impacts could be more extensive due to the emphasis placed on commodity production. While the mitigations of overlapping and/or adjoining ACEC, VRM Class II or higher, WSR, WSA, and USFS potential wilderness area designations would continue to offer protection for the identified lands with wilderness characteristics, lands and realty projects could adversely affect unprotected areas. Although no projects are currently proposed under Alternative 2, the potential for the development or expansion of ROWs could diminish wilderness characteristics in portions of identified lands with wilderness characteristics as new or adjusted ROWs change or create boundary features. While mitigations required by other special designations (e.g., ACECs) would help reduce these impacts, they would not eliminate all adverse impacts. Overall, adverse impacts would be long term and range from minor to major.

Alternative 3

Impacts Same as under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fire and Fuels Management
- Impacts from Visual Resources
- Impacts from Forestry and Woodland Products
- Impacts from Livestock Grazing
- Impacts from Minerals
- Impacts from Recreation
- Impacts from Travel and Transportation

Impacts from Lands with Wilderness Characteristics

Impacts would be similar to those described under Alternative 1, except for those due to identifying lands with wilderness characteristics as ROW avoidance areas under Alternative 3, instead of ROW exclusion areas. This would allow ROW-related developments to occur to meet public demands within the identified areas as long as they were compatible with wilderness characteristics. The overlapping and/or adjoining ACEC, WSR, VRM Class II or higher designations, WSA, and USFS potential wilderness area designations would provide reduce the intensity of long-term adverse impacts to negligible to minor.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative 1, except that identifying lands with wilderness characteristics as ROW avoidance areas could create some adverse impacts immediately adjacent to authorized projects. Although Alternative 3 proposes no projects or actions to occur within the lands identified as having wilderness characteristics, such projects or actions could occur under this alternative, which would require site-specific NEPA analysis to ensure compatibility with the management protections of the lands with wilderness characteristics. Such impacts would be adverse, long term, and minor.

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fire and Fuels Management
- Impacts from Visual Resources
- Impacts from Forestry and Woodland Products
- Impacts from Livestock Grazing
- Impacts from Minerals
- Impacts from Lands and Realty

Impacts from Lands with Wilderness Characteristics

Impacts would be similar to those described under Alternative 1, with the exception that beneficial impacts would be more extensive as additional management protections would be provided by closing identified lands with wilderness characteristics to motorized use and limiting mechanized use to identified roads and trails. Such actions would add to the naturalness and solitude of lands identified as having wilderness characteristics by eliminating some of the sights and sounds of man, as well as by removing motorized primitive road/trail proliferation. Overall, beneficial impacts would be long term and moderate.

Impacts from Recreation Management

Impacts would be the same as described under Alternative 1, except that closing identified lands with wilderness characteristics to recreational motorized use would increase the intensity of beneficial, long-term impacts to moderate.

Impacts from Travel and Transportation

Reducing the maintenance level of some roads or trails adjacent to or within lands with wilderness characteristics to accommodate only foot, equestrian, or mechanized uses would improve the values of naturalness and solitude. Additionally, re-designing or decommissioning

roads/primitive roads/trails to be used as mechanized trails could also benefit wilderness characteristics by enhancing the areas' natural qualities over the long term. Overall, impacts would be beneficial, long term, and range from minor to moderate.

Alternative 5 & 5a

Impacts Same as under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fire and Fuels
- Impacts from Forestry and Woodland Products
- Impacts from Livestock Grazing
- Impacts from Minerals Management
- Impacts from Lands and Realty

Impacts Same as under Alternative 4

- Impacts from Lands with Wilderness Characteristics
- Impacts from Recreation Management
- Impacts from Travel and Transportation

c. Cumulative Impacts

No Action Alternative

The ten areas currently identified as having wilderness characteristics were not found to possess wilderness characteristics in the late 1970s to early 1980s when the BLM completed its wilderness inventory for Oregon under section 603 of FLPMA. Since then, the BLM has carried out management prescriptions in these areas that have restored or improved the public lands to the point that wilderness characteristics are now present. Such management, ranging from restricting potentially impairing activities within the overlapping ACECs to restoring fire events in adjoining WSAs, has created lands that now appear to be in a predominantly natural condition. Overlapping and adjoining ACEC and WSR designations have further restricted activities and benefited restoration of more primitive conditions. These designations and the presence of adjoining WSAs and USFS potential wilderness areas have cumulatively aided in the gradual reduction of human imprints, such as road development and maintenance, timber harvest, and unrestricted motorized uses that previously disqualified these areas from further wilderness consideration.

Present actions that affect lands with wilderness characteristics consist of the level of use and the methods of access utilized within these areas. Due to the land ownership pattern of the Decision Area, along with the road network, the BLM identified four areas that met the minimum size

criteria of 5,000 acres. The use patterns and activities of those areas over the last 30 years, as well as their characteristic values, have prevented them from qualifying as lands with wilderness characteristics. However, due to overlapping and adjoining designations as noted above, ten areas now possess wilderness characteristics in association with adjoining WSAs or USFS potential wilderness areas.

Historic recreational usage and current population increases affect lands with wilderness characteristics, which are typically used for low-impact forms of recreation such as camping, hunting, and hiking. Current trends in population growth continue to add pressure to these areas, especially because of their proximity to existing WSAs or potential wilderness areas, which attract more individuals seeking primitive settings. With increasing use, wilderness characteristics can be adversely impacted and primitive recreation experiences in these areas could diminish in quality.

In the Decision Area, which primarily consists of broken land-ownership patterns, recreationists more heavily use larger or contiguous blocks of land. Additionally, mineral exploration and extraction in association with existing mineral rights, timber harvest, travel and transportation developments or improvements, and other economic pursuits would cumulatively impact the qualities of the lands with wilderness characteristics both directly and indirectly. Management actions to preserve or protect overlapping ACEC and WSR values, such as restrictions on the type of recreational use allowed (e.g., motorized or mechanized use) and limitations on the type of fire suppression and vegetation management efforts, would prevent or eliminate negative impacts on areas identified as having wilderness characteristics.

Alternative 1

Under Alternative 1, protecting lands identified as having wilderness characteristics would maintain or enhance wilderness characteristics, while simultaneously offsetting direct and indirect impacts through management actions that mitigate resource uses. Management of other resources such as ACECs, visual resources, travel and transportation, and land tenure, as well as other resource restrictions, would cumulatively maintain, enhance, or protect the wilderness characteristics for those areas identified as having such characteristics. The cumulative impacts to lands with wilderness characteristics under Alternative 1 would be beneficial, long term, and moderate.

Alternative 2

Under Alternative 2, the cumulative impacts to lands with wilderness characteristics would be similar to those identified under the No Action Alternative, although adverse impacts could be more intensive and widespread due a potential increase in commodity development. Without specific management protection, some lands with wilderness characteristics would only receive protection indirectly due to protective management of overlapping and/or adjoining ACEC, VRM Class II or higher, WSR, WSA, and USFS potential wilderness area designations. These indirect protections would include commercial timber harvest restrictions, facility and ROW

development, and motorized use being limited to designated roads and trails. The added focus on commodity production, mineral exploration and extraction in association with existing mineral rights, timber harvest, travel and transportation developments or improvements, and other economic pursuits would cumulatively impact the qualities of lands with wilderness characteristics both directly and indirectly. Alternative 2 would thus have the greatest potential to threaten those lands identified as having wilderness characteristics directly, indirectly, and cumulatively among all alternatives. Overall, cumulative impacts under Alternative 2 would be adverse, long term, and range from minor to moderate, with the potential to be major if the wilderness characteristics are lost.

Alternative 3

Cumulative impacts under Alternative 3 would be similar to those described under Alternative 1, with the exception of an increased potential for adverse impacts due to recreational activities. Focusing attention on recreational opportunities offered in lands with wilderness characteristics could increase the quantity of use of the interim route network under the limited designation and reduce the quality of primitive recreational opportunities due to increased numbers of both private and commercial users. This, in turn, would reduce the outstanding opportunities for solitude or primitive and unconfined types of recreation in lands with wilderness characteristics, and possibly in their contiguous WSAs and USFS potential wilderness areas. Overall, cumulative impacts would be adverse, long term, and range from minor to moderate.

Alternative 4

Cumulative impacts under Alternative 4 would be similar to those identified under Alternative 1, although beneficial impacts would be more intense due to the added emphasis on the protection and maintenance of resources in their natural, historic condition. This emphasis would provide both direct and indirect protection for lands with wilderness characteristics. Cumulative impacts would be beneficial and long term as lands with wilderness characteristics and the adjoining WSAs and USFS potential wilderness areas would be managed to prevent impacts to resource values. Over time, the direction of “light on the land” management would increase the naturalness and solitude of lands with wilderness characteristics. Overall, cumulative impacts would be beneficial, long term, and moderate.

Alternative 5 & 5a

Cumulative impacts under Alternatives 5 and 5a would be the same as those identified under Alternative 4.

C. IMPACTS TO RESOURCE USES

1. FACILITIES

Under all of the alternatives, the maintenance, improvement, or development of facilities would continue for the purpose of meeting public and administrative demands, or where facilities are required for resource protection. Facilities consist primarily of the recreation based uses of, but not limited to, campgrounds, staging areas (equestrian, motorized, etc.), parking areas, toilet facilities, boat launches, as well as and administrative and interpretive sites. Adverse impacts to facilities are usually a result of higher priority/sensitive resources needs that prohibit facility developments. Beneficial impacts result from the successful development of facilities to meet public demands, or from the improvement of existing facilities to meet public satisfaction as a result of demands being placed upon them. In general, improvements, replacement, or development of facilities is required to fulfill such demand and satisfaction.

a. Indicators, Methods, and Assumptions

Facilities Indicators

Public satisfaction and resource protection were used as indicators to assess impacts to facilities using professional judgment and public comments.

Facilities Methods and Assumptions

Impact analysis and conclusions are based on the assumption that the facilities would be managed, maintained, or developed in accordance with BLM, federal, state, and local requirements, and in a manner to meet public demands and administrative needs through public comment, professional judgment, and management direction.

Magnitude of Impacts to Facilities

The intensities of impacts are described, where possible, using the following guidance:

- Negligible:* The impact is at the lower level of detection; there would be no measurable change to public satisfaction, administrative needs, or resource protection.
- Minor:* The impact is slight but detectable; there would be a small change, which, if measurable, would be localized and not affect public satisfaction, administrative needs, or resource protection.
- Moderate:* The impact is readily apparent; there would be a measurable change to public satisfaction, administrative needs, or resource protection.
- Major:* The impact is severe; there would be a highly noticeable, long-term, or permanent measurable change to public satisfaction, administrative needs, or resource protection.

Short-term impacts to facilities would be between 1-5 years.

Long-term impacts would be greater than 5 years.

b. Impacts to Facilities

Impacts to Facilities in the Decision Area would result from actions proposed under the following resource management programs:

- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Visual Resources
- Lands with Wilderness Characteristics
- Facilities
- Recreation
- Lands and Realty
- WSRs

Impacts Common to all Alternatives

Impacts from WSRs

Existing WSR management plans identify areas along the designated river segments in the Decision Area for facility improvements and developments. These improvements and developments would benefit the quality of experiences, and the satisfaction of and demand of public use. Impacts would be beneficial and minor.

No Action Alternative

Impacts from Invasive Plants and Noxious Weeds

There would be negligible impacts from the management of invasive plants and noxious weeds under the No Action Alternative.

Impacts from Fisheries

There would be negligible impacts from fisheries management under the No Action Alternative.

Impacts from Wildlife

There would be negligible impacts from the management of wildlife under the No Action Alternative.

Impacts from Visual Resource

Impacts to facilities from visual resources are dependent upon the VRM classification of landscapes, as well as the size and scope of the projects proposed. A VRM Class I rating would prohibit almost all facility development; VRM Class II would restrict facility development in such areas unless significant mitigations could be made; VRM Class III allows for more impacts to visual aesthetics, but projects cannot dominate the viewsheds; and VRM Class IV does not significantly restrict developments, although mitigations, if possible, can be utilized to reduce impacts to viewshed. Facilities would need to be designed to meet the objectives of the various VRM classes while still meeting the demand, quality of experience, and satisfaction needs of the public. Public satisfaction could be impacted if VRM classifications prevent or limit the development of facilities that would satisfy public demands.

Impacts to facility developments from VRM are typically adverse and completely dependent upon the areas classification where developments are proposed. These impacts can range from negligible in Class IV areas to major in Class I areas. The lower the VRM classification (i.e. Class III and IV), the more allowable construction or maintenance of facilities to meet public demand or administrative needs become. Impacts to facilities under this alternative would be beneficial and long-term due to the dominance of the lower VRM classifications of the Decision Area, and minor in both magnitude and scope at the local level. Decision Area impacts would be negligible.

Impacts from Lands with Wilderness Characteristics

There would be negligible impacts from the management of wilderness characteristics under the No Action Alternative as their specific management directions are not addressed in the current Baker RMP (BLM 1989).

Impacts from Facilities

Since resource objectives under the current Baker RMP (BLM 1989) are less restrictive in the Decision Area, facilities would be more easily developed to meet public and administrative satisfaction on a case by case basis. Impacts would be direct and beneficial for both the short and long term, and moderate in magnitude and the local level. Decision Area impacts would be negligible.

Impacts from Recreation

Direction to provide facilities for overnight and day use recreational opportunities on a case-by-case basis would maintain public satisfaction by developing appropriate facilities to meet the public demand. Impacts under this alternative would be beneficial, long-term, and would be minor at the local level, with Decision Area impacts being negligible.

Impacts from Land and Realty

Since few resources in the Decision Area have restrictions to offset such uses, facilities could be developed as needed or requested as long as NEPA requirements are met. Under this alternative, approximately 13 percent of the BLM public lands fall within either an exclusion (2 percent) or avoidance (11 percent) area. Only exclusion areas such as Wilderness or Wild sections of WSRs and some ACECs would create direct adverse impacts to facility management. These adverse impacts would be long-term and minor at the local level, since few exclusion zones exist under the current Baker RMP (BLM 1989) and the areas where those exclusions exist are managed specifically for the protection of higher resource values. Impacts across the Decision Area would be negligible.

Impacts Common to all Action Alternatives

Impacts from Invasive Plants and Noxious Weeds

Facility developments such as wash racks, disposal sites, and check stations could be required by state or federal agencies at high-use recreational facilities to mitigate or minimize the spread of noxious or invasive species. The development of these facilities could impact the type, use amount, cost, form of use, and location of facilities that have a tendency to spread noxious or invasive species. Impacts would be both adverse if facilities were decommissioned due to potential risk of species spread and beneficial by providing opportunities to improve facilities to meet overall species mitigations. Overall, impacts would be beneficial and adverse, long-term, and minor to moderate in magnitude at the local levels. Decision Area impacts would be both beneficial and adverse, long-term, but negligible to minor in magnitude.

Impacts from Wildlife

Action Alternatives would improve wildlife habitats and populations, which could result in the need for additional facilities to enhance public experiences at key locations, such as watchable wildlife areas, high use staging areas (hunting, horseback riding, motorized access, etc), as well as to provide for resource protection from increased visitation or to prevent wildlife harassment. Facilities such as camping areas, restrooms, and parking areas could require development to meet the demands and satisfaction of public users. Beneficial impacts from the management of wildlife would be minor across both the Decision Area as well as at the local level, and could be both short- and long-term in nature, depending on the resulting projects.

Alternative 1

Impacts from Fisheries

As the fisheries associated with this alternative improve in quantity, quality, and habitat, additional facilities or improvement to existing facilities could become necessary. Boat ramps, docks, fish cleaning stations, parking areas, boat trailer wash racks, toilets sites, and other

associated facilities could be required to enhance public experiences as well as resource protection at key locations. There would be minor to moderate beneficial long-term impacts at the local level. Decision Area impacts would be long-term, beneficial, but negligible to minor in magnitude.

Impacts from Visual Resource

Under Alternative 1, 60 percent of the BLM public lands would be contained within VRM Classifications I and II, as opposed to the 37 percent of the same classifications found under the No Action Alternative. Under these classifications, facility developments would either be excluded from occurring or would require high levels of mitigations to protect the visual quality of the Decision Area. The adverse impacts to facility developments under this alternative would be long-term and negligible for the Decision Area, but could be moderate at local levels where facilities are required.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, the identified lands with wilderness characteristics, as well as any future identified lands with wilderness characteristics, would be excluded from facility developments. This exclusion would eliminate those acres from facility developments required to meet public demand or administrative needs. Adverse impacts would be negligible for the Decision Area. These same impacts would be minor and long-term at the local levels.

Impacts from Facilities

Under Alternative 1, facilities would be assessed and developed/improved based on public demand and satisfaction or administrative needs. This alternative provides the opportunity to meet those demands on a case by case basis where required in order to improve internal and external satisfaction. Impacts under this alternative would be beneficial, long-term, and moderate at the local level, but negligible to minor for the Decision Area as a whole.

Impacts from Recreation

By encouraging and promoting public recreation, an increased use of public lands and facilities would be expected to occur under Alternative 1. This increased use would create additional maintenance or improvement requirements as use pressures increase and put strain on these facilities. These specific impacts would be adverse, short-term and minor at the local area level as management adjusted to meet the public needs. However, the increasing demands and needs of public land users could require the development of additional facilities to meet those needs. This would result in minor to moderate beneficial and long-term impacts at the local level. The impacts to the Decision Area would be negligible.

Impacts from Lands and Realty

Creating exclusion and avoidance areas based on a variety of resource needs would reduce the ability to develop facilities. Although avoidance areas can still see facility developments as long as mitigations are met, the exclusion zones eliminate all possibility for facilities to occur. Under this alternative approximately 58 percent of the BLM public lands would be contained within either exclusion (16 percent) or avoidance (58 percent) areas, which would restrict facility developments overall. These areas would adversely impact the ability to develop necessary public and administrative facilities, and could range from minor in avoidance zones to major in exclusion zones at the local levels, with Decision Area impacts being adverse, but minor in magnitude. However, there would also be minor to moderate beneficial impacts to facilities as 42 percent of the BLM public lands would still be available for facility developments to meet some of the demands at the local levels. All impacts to facilities would be long-term.

Alternative 2

Impacts from Fisheries

Same as alternative 1, except that facilities would see a specific increase in public use. Since public satisfaction is an indicator for facilities, emphasis on recreational sport fisheries under this alternative would drive the need for public satisfaction higher and faster, and would therefore require additional/improved facilities to meet increased demand. Impacts to facilities would still be expected to be minor at both the local and Decision Area levels, as well as being short- and long-term in nature.

Impacts from Visual Resource

Under Alternative 2, there would be fewer adverse impacts to facilities than identified under Alternative 1. Only 29 percent of the BLM public lands are contained within VRM Classifications of I and II, which would reduce the amount of restrictions or mitigations required for facility developments to occur. This alternative would more freely allow for development/improvements to occur in order to meet public and administrative demands. Impacts to facilities would overall be beneficial, long-term, and minor for the Decision Area, but moderate at the local levels.

Impacts from Lands with Wilderness Characteristics

Impacts would be the same as identified under the No Action Alternative.

Impacts from Facilities

By emphasizing the development or improvement of facilities regardless of demand, it is expected that public and administrative satisfaction would be directly and indirectly improved. There would have minor to major beneficial impacts at the local levels. Decision Area impacts

would also be beneficial, but minor in magnitude. All impacts would be expected to be long-term.

Impacts from Recreation

Impacts from recreation would be the same as Alternative 1, except that the emphasis would be to increase amenities and facilities to attract commercial use. This would cause a minor to moderate beneficial impact to facilities as sites would be developed or improved to encourage commercial and specialized services to meet public or administrative demands. Overall impacts from this alternative would be long-term, beneficial, minor for the Decision Area and moderate at the local level.

Impacts from Lands and Realty

Impacts would be the same as Alternative 1, except that the BLM lands contained within exclusion (6 percent) or avoidance (39 percent) areas is reduced to approximately 45 percent of the lands within the Decision Area. This would allow a slight increase in the availability of lands for facility development, as well as reducing the amount of acreage that would require some form of mitigation to meet public and administrative demands. This is especially noticed due to the reduction of “exclusion” zones, which preclude any type of facility development, to 6 percent. Overall, the impacts under this alternative would be minor at Decision Area levels, moderate at the local level, long-term, and beneficial.

Alternative 3

Impacts from Fisheries

Impacts would be the same as identified under Alternative 2.

Impacts from Visual Resource

Under Alternative 3, the amount of BLM public land contained within VRM Classifications I and II is increased to 62 percent. This is primarily due to the acreage associated with the NHOTIC viewshed exclusion zone. This increase would further restrict, or in some cases, eliminate facility development. Impacts under this alternative would continue to be minor for the Decision Area, moderate at the local levels, long-term, and adverse.

Impacts from Lands with Wilderness Characteristics

Impacts from wilderness characteristics would be the same as Alternative 1, except that the development of some facilities to meet recreational demand could occur with restrictions, as long as they do not degrade the Wilderness Characteristic values. Minor, beneficial, long-term impacts at the local level would occur as a result of allowing facilities to be developed to meet demand in these areas if mitigations are met. Decision Area impacts would be negligible.

Impacts from Facilities

Impacts would be similar to those discussed under Alternative 2, with the exception that the recreational emphasis in Alternative 3 could increase the intensity of beneficial impacts on public demand and satisfaction as recreational facilities are developed (e.g., campgrounds, boat ramps, parking areas, and toilets). Such impacts would be long-term and moderate at the local levels, but negligible to minor for the Decision Area.

Impacts from Recreation

Impacts would be similar to those discussed under Alternative 2, except that Alternative 3 emphasizes improving recreational attractiveness of sites. This would result in increased use of public lands and facilities, resulting in increased needs for maintenance, repair, and replacement. The increased pressure on existing facilities would be a short-term adverse impact at the local level, ranging from minor to moderate until management of those facilities adjusted to compensate for the change in use. On the other hand, Alternative 3 also focuses on building, improving, and/or developing new recreational facilities such as campgrounds, boat ramps, staging areas, and toilets, to encourage recreational attractiveness. This action would directly meet the demands and satisfaction of public land users associated with recreational pursuits. Such beneficial impacts would be long-term, range from minor to moderate at the local levels but negligible for the Decision Area.

Impacts from Lands and Realty

Impacts would be the similar to those identified under Alternative 2, except that 59 percent of the Decision Area would be contained within exclusion (9 percent) and avoidance (50 percent) areas.

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Lands with Wilderness Characteristics
- Impacts from Facilities
- Impacts from Recreation

Impacts from Fisheries

Impacts would be similar to those described under Alternative 1, with the exception that the emphasis on native species would have differing impacts to facilities based on the availability of native fish species. Facilities in areas with native populations would experience minor beneficial short-and long-term impacts at the local level as they are improved or developed to meet the public's demand for native fishing opportunities. Facilities associated with non-native species could experience local adverse impacts as management emphasis, funding, and species improvement projects shift towards native species. This could include a decline in maintenance,

improvements, and developments over time. This adverse impact would be minor to moderate in magnitude, and both short- and long-term at the local levels. Overall, the impacts from the management of fisheries under this alternative would be adverse, long-term, minor to moderate at the local levels, and minor for the Decision Area.

Impacts from Visual Resource

Under Alternative 4, the highest amount of adverse impacts to facilities would occur since almost no lands exist outside of VRM Classifications of I, II, and III (99.5 percent). One percent of the public lands would be within the Class IV VRM rating which allows for the highest potential for facility developments. This alternative would create a situation whereby almost every project would be moderately to highly mitigated in order to meet VRM standards, and no large facilities could occur without the potential to directly violating the VRM classifications. Impacts from this alternative would be adverse, long-term, major to major for local levels, and negligible to minor for the Decision Area.

Impacts from Lands and Realty

Under Alternative 4, approximately 72 percent of the BLM lands would be included in avoidance (34 percent) or exclusion (38 percent) areas. This would further restrict the possibility of facility development to meet public demands or administrative needs, and would thereby adversely impact public satisfaction, particularly with 38 percent of public lands being excluded from any developments. Overall, adverse impacts to facilities would range from moderate to major at local levels, minor for the Decision Area, and be long-term.

Alternative 5

Impacts Same as under Alternative 1

- Impacts from Lands with Wilderness Characteristics
- Impacts from Facilities
- Impacts from Recreation

Impacts Same as under Alternative 4

- Impacts from Fisheries
- Impacts from Visual Resources

Impacts from Lands and Realty

Under Alternative 5, approximately 83 percent of public lands would be either avoidance (12 percent) or exclusion (70 percent) areas, which would be the most restrictive for facility development. With 70 percent of the BLM lands within the Decision Area contained in “exclusion” zones, few facilities could be developed and it would not be expected that public

satisfaction or administrative needs would be met. Overall, adverse impacts to facilities would be major at the local levels, moderate for the Decision Area, and long-term.

c. Cumulative Impacts

The development or maintenance of facilities are usually driven or restricted by other resources. Facility development is a very localized and specific form of management designed to control impacts from activities, or to allow impacts to meet specific public demands or management objectives. Past actions within the resource area have adequately provided for the development and maintenance of various forms of facilities such as campgrounds, boat launches, toilets, and administrative sites. Historically, request for facility developments were relatively low in number and small in size.

Within the last 10-15 years, a marked increase has been seen in regards to demands for facility developments on public lands. Technological increases, as well as population growth, has created a surge in demands for and upon facilities such as campgrounds (fully developed, semi-developed and dispersed), interpretive sites, staging areas, trailheads, boat launches, and day use areas. This increase has created a cumulative impact both directly and indirectly on all federal and state managed lands within the Planning Area to meet public demand. Additionally, changes in the locations of administrative sites, such as the temporary collocated USFS/BLM Office in Baker City, has also created a need for the development of administrative facilities that can properly and conveniently meet public information needs.

A future demand on public lands is expected to continue and to increase. Various facility developments, whether on private or federal and state lands, would continue to occur across the Planning Area in order to meet public and administrative demands. As the population of Oregon and adjacent states increases, facility developments would also need to increase in order to meet the growing demand both locally and regionally. Regardless of ownership, direct and indirect demands would dictate the need for developments.

Alternative 1

Under Alternative 1, facility developments would occur in general on a case by case basis as required to meet current demand. This direction would support the demands expected by the population growth of Oregon, as well as the satisfaction of public land uses created by that population increase. Areas where facilities could be developed are well-represented across the Decision Area under this alternative, and would allow for adequate opportunities to meet administrative and public demands as well as the satisfaction of both. Cumulative, direct and indirect impacts would be beneficial overall, minor to moderate at the local levels in magnitude and long-term. Decision Area impacts would be negligible.

Alternative 2

Under Alternative 2, more BLM managed lands would be available for facility development to meet demand and satisfaction. This alternative actively seeks to provide for commodity and economic improvements, which has both a direct and indirect impact on the development of facilities. Improvement and developments would be allowed to occur on more acres with fewer restrictions, to meet public need. This alternative would create a proactive method to provide the necessary structures and improvements to meet Oregon and adjacent state population demands, and would provide the greatest benefit to facility development. These beneficial impacts would be moderate to major at the local level, minor for the Decision Area as a whole, and long-term.

Alternative 3

Cumulative, direct and indirect impacts under Alternative 3 would be similar to those described under Alternative 2. This alternative would also be proactive in meeting the demands of the public by emphasizing the development of recreational facilities specifically. This recreational focus would create more attractive, varied and numerous recreation and administrative sites throughout the Decision Area in order to meet public demands, both locally and regionally. Cumulative impacts from this alternative would be beneficial, long-term, and moderate to major in magnitude at local levels. Decision Area impacts would be minor.

Alternative 4

Under Alternative 4, the potential for the development of facilities is greatly reduced and would only minimally meet the current and future demands of the growing population of Oregon or adjoining states. This alternative not only restricts or eliminates the possibility of developments across the Decision Area, but also creates a situation of failing to meet public demands in certain situations. Both direct and indirect, cumulative impacts would be easily seen as management begins to reduce public and administrative satisfaction. This alternative could force more facilities onto other federal, state, or private ownerships directly adjacent Decision Area lands in order to compensate for BLM restrictions. This alternative would be adverse, long-term, and range from moderate to major in magnitude at local levels, and minor to moderate for the Decision Area.

Alternative 5 & 5a

Impacts from this Alternative would be the most adverse to facility management of the public lands. Under this alternative, the majority of the Decision Area lands would be removed from any facility developments, leaving very little potential for facility developments necessary to meet the growing demands of the state and region. Cumulatively, this alternative not only eliminates or at a minimum greatly reduces facility developments, but would also fail to meet public or administrative demands overall. Cumulative impacts, both direct and indirect, would occur as public land management begins to negatively impact public satisfaction and directly forces these demands onto other federal, state, and private lands. It would not be expected that

the development of facilities on these adjacent lands would be entirely capable of meeting population growth or demands as a whole. Adverse impacts to facilities would be long-term, major in magnitude at local level and moderate for the Decision Area.

2. FOREST AND WOODLAND PRODUCTS

Forest and woodland products would be affected most by fire and fuels management, forest vegetation management, wildlife management, and forest and woodland products management. Restrictions on management activities for the protection of other resources would affect the level, location, and effectiveness of forest and woodland products management actions.

a. Indicators, Methodology and Assumptions

Forest and Woodland Products Indicators

Indicators are used to identify the level of impact. The indicators used for this impact analysis are:

- Number of acres treated per decade
- PSQ per decade
- Intensity of harvest by silvicultural prescription
- Reduction in FRCC

Forest and Woodland Products Assumptions

- Under the No Action Alternative, ASQ depicts a hard target of timber volume to be harvested per decade, while PSQ under Alternatives 1-4 is more of a guideline for the volume of wood products that would be offered per decade.
- Forest and woodland product goals can be achieved while still meeting other resource management requirements.
- Forest and woodland product treatments would reduce existing fuel hazards and corresponding FRCC ratings in treated stands a minimum of one level, but ideally to level I.
- Burned timber may be salvaged in all areas unless it is specifically prohibited, including timber burned as a result of prescribed fire or use of wildland fire.
- Management actions related to protection of water quality, riparian areas, soils, fisheries, wildlife, special status plants, and ACECs, among others, affect the acres and output of forest products and are considered in the estimated PSQ.
- Budget and staffing level would be sufficient to achieve treatment goals.
- Where stated, ranges of treatment acreage were defined for analysis purposes and are based on a cumulative 10-year target. Actual acreage treated per decade would vary.
- Impacts are predicted for 20 years from the time the RMP is initially implemented.

Magnitude of Impacts to Forest Vegetation

This analysis defines levels of effects on forest vegetation or its management as follows:

- Negligible:* Forest vegetation, or its management, would not be appreciably affected by other resource management activities or the restrictions they impose.
- Minor:* Impacts to forest vegetation, or to management of forest vegetation, would be small but detectable.
- Moderate:* Impacts to forest vegetation would be readily apparent and mitigation measures would be necessary if the impacts were deemed adverse. Management of forest vegetation would be encumbered by the restrictions imposed by other programs and mitigation measures would be needed to comply with the restrictions.
- Major:* Impacts to forest vegetation would be obvious and there may not be sufficient measures available to mitigate adverse effects. Opportunity for forest vegetation management may be foregone due to restrictions imposed by other programs.
- Short-term:* Anticipated effects occur within 5 years of project implementation.
- Long-term:* Effects generally occur after the first five years following implementation and persist for as much as 20 years (within the life of this RMP).

b. Impacts to Forest and Woodland Products

Impacts to forest and woodland products in the Decision Area would be the same as those described in Section B.5b Vegetative Communities (Forest Vegetation) in this chapter for the following resource management programs:

- Water Resources
- Soil Resources
- Special Status Species
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Livestock Grazing
- ACECs

Impacts to forest and woodland products in the Decision Area discussed in this section are those that are proposed under the following resource management programs:

- Vegetative Communities
- Wildlife
- Fire and Fuels Management

*No Action Alternative*Impacts from Vegetative Communities*Riparian and Wetland Management*

While the RMAs established by the BLM under the No Action Alternative would place restrictions on forest and woodland products management within the Decision Area, they would not prohibit all activities. Riparian and wetland areas would be evaluated on a project specific basis, and in some cases, the harvest of competing conifers would be encouraged to improve riparian areas by facilitating the reestablishment of woody riparian vegetation and reducing hazardous fuels. This would contribute to forest product production and have a minor, short-term, beneficial impact. However, the restrictions imposed by the overall management of riparian and wetland communities would likely have minor, long-term, adverse impacts on forest and woodland products.

Coniferous Forest Management (Old growth)

As discussed in the Impacts from Vegetative Communities: Impacts to Forest Vegetation: Coniferous Forest Management, the No Action Alternative would require the BLM to maintain at least 10 percent of the total forest acreage within the Decision Area to be in well-distributed old growth habitat. There is likely more than 10 percent of the current forested land base that would meet this criteria already existing in SMAs (WSAs, WSR corridors, ACECs) and areas that are inaccessible, or otherwise unfeasible for logging. Management of these stands would be prohibited, but this alternative would allow commercial harvesting of all stands containing some old growth components, targeting the big, old trees, and any existing old growth forest that exceeds the 10 percent minimum.

Since most of the old growth stands under this alternative would already be off limits from management, there is no additional impact to the harvest base. The foregone opportunity for improving long-term stand productivity and reducing fuel loads in these stands is also a given. Thus, the management of old growth forest under this alternative would have a minor, long-term, adverse impact on stand productivity, fuel reduction, and the production of wood products.

As indicated in the Impacts from Vegetative Communities: Impacts to Forest Vegetation: Coniferous Forest Management section, public forest management started steering away from harvesting old growth forests in the early 1990s and began to focus on preserving them and restoring forest health. This management philosophy was counter to the direction provided by the current Baker RMP (BLM 1989), but, nonetheless, it essentially became the primary focus of the Baker Resource Area's forest management strategy. As a result, forest and woodland management over the past two decades has primarily avoided old growth stands and focused on thinning younger stands. Where large, old trees have been part of the stand composition within treatment units, they have generally been retained for inclusion in the post-treatment, residual

stand. Compared to the No Action Alternative as written, this management paradigm has had an adverse, moderate to major, long-term impact on the yield of forest and woodland products.

Hardwood and Mountain Shrub Management

There would be no impact to forest and woodland products management from the BLM's hardwood and mountain shrub management within the Decision Area under the No Action Alternative as written, because there is little direction to conduct management in these communities.

However, the BLM's actual management practices over the past two decades has resulted in the treatment of some hardwood and mountain shrub stands ancillary to the greater objective of conifer forest management. Restorative work in these stands has resulted in a small amount of forest product extraction, which has had a negligible to minor, short-term, beneficial impact on forest and woodland products.

Juniper Woodland Management

There would be no impact to the BLM's forest and woodland products management from juniper woodland management under the No Action Alternative as written.

While the actual, current BLM management of juniper woodlands has resulted in the treatment of approximately 900 acres per year within the Decision Area, no commercial market presently exists for this wood. The only contribution this activity has made to the BLM's forest and woodland products program has been from a small amount of juniper harvested for personal use firewood. Therefore, juniper woodland management currently has a negligible, short-term, beneficial impact on forest and woodland products.

Impacts from Wildlife

The No Action Alternative would not restrict the size of forest openings, nor would it regulate the amount of canopy closure retained during forest treatments within the Decision Area. The intensity of BLM management for the production of timber products would be adjusted where necessary to accommodate other resources, including wildlife habitat, but it would only be restricted on 3914 acres to specifically benefit or protect wildlife habitat. The remaining forest base would be managed using even-age practices such as clear-cutting and shelterwood harvest systems. These restrictions would have very little, if any, adverse impact on forest and woodland products management.

Snag and green tree retention (GTR) requirements are included as Standard Design Features (i.e., BMPs). The intent is to retain snags and wildlife trees provided they do not constitute a safety hazard or impact the allowable cut, with emphasis placed on using forestland withdrawn from management for snag management. Very little specific guidance is provided under the No Action Alternative, leaving the number of these components retained to be determined on a

discretionary case specific basis. The minimum guidance given suggests retaining sufficient snags or GTR evenly divided between sizes greater than 25 inches dbh and 10-25 inches dbh in order to maintain a 60-70 percent viable population level of cavity dependent wildlife. Down log management BMPs suggest leaving 5 to 10 down logs per acre where available. These actions would potentially have a minor, short-term, adverse impact on forest and woodland products management.

Impacts from Forest and Woodland Products

The BLM's ASQ target under the No Action Alternative is 24,000 MBF per decade, with priority for harvest assigned to areas with the greatest concentrations of commercial timberland in the Decision Area and where conflicts with other uses are anticipated. Silvicultural systems would be favored that emphasize a high, sustained-yield of forest products such as selection, shelterwood, and clear-cutting. Reforestation would often be accomplished through artificial regeneration to ensure genetically superior trees are grown to perpetuate sustained-yield management. Intermediate stand treatments, such as PCT, would be done as funding permits to maintain the future allowable cut.

The No Action Alternative would provide an abundance of forest products for the fiber needs of current and future generations. Long-term productivity, which is a basic tenet of sustained-yield, would not be assured since intermediate stand treatments would only be done as funding permits. Thus, a lack of funding would correlate to a lack of thinning. Sustaining forest health and the reduction of fuels are not really addressed. Impacts to timber supply would potentially be beneficial, major, and long-term, while the beneficial impacts to productivity, forest health, and fuel reduction would be minor and long-term.

However, as discussed under Impacts from Vegetative Communities: Impacts to Forest Vegetation: Impacts from Forest and Woodland Products, the paradigm shift of the 1990s resulted in far less timber harvested from the Decision Area per year by the BLM during the past two decades (approximately 6,000 MBF per decade). While the Baker Resource Area's contribution to the overall local timber supply was historically small compared to the USFS or private industry lands, this departure from the current Baker RMP (BLM 1989) direction contributed to the disastrous ramifications to the local forest products industry. Compared to the No Action Alternative as written, the impact resulting from the reduced harvest would be adverse, major, and long-term, while the beneficial impacts to productivity, forest health, and fuel reduction would be moderate and long-term.

Alternative 1

Impacts from Vegetative Communities

Riparian and Wetland Management

Impacts would be the same as those described under the No Action Alternative.

Coniferous Forest Management (Old growth)

Alternative 1 would place the second highest emphasis on BLM old growth forest management of all the alternatives. Old growth forest development would be a component of all forest management activity plans within the Decision Area. An aggressive management approach of thinning from below and removing non-fire hardy species, such as grand fir, would be used to achieve compositional and structural conditions described in Region 6, Interim Old Growth Definition, USDA Forest Service, Portland, Oregon, (June, 1993). All merchantable cut material would be harvested for use as forest products.

While the harvest of cut material would contribute to the production of forest products, retaining most or all larger trees in a stand would reduce the potential timber volume per acre produced. Fuel reduction would be adequately achieved in these stands and their productivity would marginally to moderately improve. Therefore, this alternative would have a moderate, long-term, beneficial impact on stand productivity and fuel reduction, while having a minor, long-term, beneficial impact on production of wood products compared to the No Action Alternative as amended.

Hardwood and Mountain Shrub Management

Alternative 1 would make the BLM's restoration of hardwoods and mountain shrubs, where present, a component of all forest management activity plans within the Decision Area. Where needed, all conifers (excluding large, old individuals), within 100 feet of the stand boundary and any hardwood trees cut during restoration activities would be harvested. This alternative would have a moderate, long-term, beneficial impact on stand productivity and fuel reduction, while having a minor, long-term, beneficial impact on production of wood products compared to the No Action Alternative as amended.

Juniper Woodland Management

Under Alternative 1 the BLM would eradicate 5,000 to 20,000 acres per year of juniper woodlands within the Decision Area in the interest of restoring the native plant communities on which they have encroached. While this action would make an abundance of juniper wood available, the absence of an established, local market for juniper wood products makes the utilization of most of this wood unlikely. At this point in time, the only utilization of juniper wood that could be relied on would be an insignificant amount harvested for use as firewood or fence posts. Should a local commercial market become established, or the value increase enough to offset travel and transportation costs, this available wood could be a boon to the local forest products industry.

In comparison with the amended No Action Alternate, this alternative would have a moderate, long-term, beneficial impact on juniper woodland management, the native plant community that is being restored, and on fuel reduction. There would be a negligible, long-term, beneficial impact on production of SFPs (firewood, posts). Should a local market develop, which is not

beyond the realm of possibility, this alternative would have a moderate to major, long-term, beneficial impact on production of wood products.

Impacts from Wildlife

Alternative 1 would restrict the size of forest openings to a maximum of 40 acres, and a minimum of 30 percent canopy closure would be retained during forest treatments implemented by the BLM within the Decision Area. There would not be a specific acreage, or area identified or restricted for wildlife habitat management concerns, instead, all forest management actions would be undertaken with the enhancement and/or retention of wildlife habitat as an objective. Since the primary silvicultural system to be used would be thinning, in most cases these actions would have very little adverse impact on forest and woodland products management (30 percent canopy closure is the desired average for dry site forests of medium to low-medium productivity). The potential exception would be with lodgepole pine management and sanitation/salvage harvests, which would require clear-cutting.

While it would be a rare case where a clear-cut would need to be larger than 40 acres, there would be instances where exceeding this size threshold would be the appropriate management action needed. Obviously, a clear-cut would also not retain a 30 percent canopy closure. In these instances, the restrictions imposed by wildlife management would have a moderate to major, long-term, adverse impact on forest and woodland product management compared to the No Action Alternative.

Snag and GTR requirements would be included as Standard Design Features: i.e., BMPs, and would be essentially the same under all five action alternatives. The specific guidance proposed would make forest management and the harvest of forest products slightly more complex, but it should not inhibit these activities. Therefore, the impacts on forest and woodland products management would be just slightly more adverse than under the No Action Alternative.

Impacts from Forest and Woodland Products

Alternatives 1-4 would have a PSQ rather than an ASQ. Whereas an ASQ is a hard target that is intended to be met each year, or decade, a PSQ is more of a guideline for the volume of wood products that would be offered per decade from the Decision Area. Alternative 1 would have a PSQ range of 5,000-10,000 MBF on a decadal basis; however, the BLM's emphasis would be on treating 5,000 acres of forest and woodland per decade. Commercial thinning from below would be the primary silvicultural system used with the intent of reducing tree stocking to improve residual stand vigor and restore historic, pre-fire suppression forest structures. Clear-cutting would only be used in lodgepole pine forests, or during sanitation and/or salvage harvests. Stands that have been commercial thinned would not need to be reforested, thus artificial regeneration would be reserved for reforestation needed after sanitation or salvage harvests. Intermediate stand treatments would be included in all forest management activity planning and would comprise a large percentage of the 5,000 acres to be treated per decade.

Alternative 1 would provide a moderate, sustainable, and hopefully predictable supply of forest products. While the volume would be less than half of the No Action Alternative, a predictable supply may be more important to local communities than increased volume. Predictability may provide the incentive needed by entrepreneurs to invest in forest products manufacturing infrastructure. Treatments designed to enhance long-term productivity, sustain forest health and reduce fuels would be the foundation that the forest and woodland products program are built on. The supply of forest and woodland products would essentially be a by-product of these activities. This alternative would provide a holistic approach to forest management compared to the No Action Alternative, and the overall beneficial impacts would be greater. Impacts to timber supply would be beneficial, moderate, and long-term, while the beneficial impacts to productivity, forest health, and fuel reduction would be major and long-term.

Alternative 2

Impacts from Vegetative Communities

Riparian and Wetland Management

Impacts would be the same as those described under the No Action Alternative.

Coniferous Forest Management (Old growth)

Under Alternative 2 the BLM would retain the minimum amount of old growth stands within the Decision Area required to meet the habitat needs of old growth dependent wildlife species. It is presumed that this would amount to less area (10 percent of total forest area) than identified under the No Action Alternative, and that all other old growth stands and stands with some old growth structure would be managed for the maximum sustained yield of timber (excepting stands in protected areas). Thus, there would potentially be more timber available for harvest under this alternative than any other. This alternative would have greater (major), long-term, beneficial impact on stand productivity and fuel reduction, while also having the greatest (major), long-term, beneficial impact on production of wood products compared to the amended No Action Alternative.

Hardwood and Mountain Shrub Management

Alternative 2 would only emphasize BLM hardwood and mountain shrub restoration in stands that would result in the harvest of merchantable timber and other forest products. All conifers and any hardwood trees cut during restoration activities in the Decision Area would be harvested. There would be no treatment size parameters, although hardwood treatments would likely be contiguous with conifer treatment areas. In comparison to the amended No Action Alternative, this alternative would have a minor to moderate, long-term, beneficial impact on stand productivity and fuel reduction, while having a minor, long-term, beneficial impact on production of wood products.

Juniper Woodland Management

Alternative 2 would place the least emphasis on the BLM's juniper woodland management unless an economically viable market for juniper was found, or the removal of juniper would increase forage value. Since there presently is no local market, it must be assumed that juniper woodlands within the Decision Area would primarily be managed for forage value. This would likely result in only a small percentage of existing woodlands receiving treatment. If juniper wood becomes lucrative sometime in the future, it is likely that juniper harvesting levels would increase.

Compared to the amended No Action Alternate, this alternative would likely result in a minor, long-term, adverse impact on juniper woodland management, the native plant communities in need of restoration and on fuel reduction. Unless an aggressive management approach is taken, juniper would probably begin to re-colonize the site from which it was removed in fairly short order. Similar to Alternative 1, there would be a negligible, long-term, beneficial impact on production of SFPs.

Should a local market develop, which is not beyond the realm of possibility, this alternative would have the potential to have a moderate to major, long-term, beneficial impact on production of wood products.

Impacts from Wildlife

Alternative 2, and all the action alternatives, would also have the size restriction on forest openings as a maximum of 40 acres, but under this alternative the minimum canopy closure would be reduced to 20 percent retained during forest treatments within the Decision Area. While this alternative emphasizes the BLM maximizing the sustained yield of forest products through the use of more aggressive harvest systems, these systems should be able to accommodate a 20 percent canopy closure. This would result in a negligible, short-term, adverse impact on forest and woodland products management compared to the amended No Action Alternative. However, once again, the potential exception would be with lodgepole pine management and sanitation/salvage harvests, which would require clear-cutting. In these instances, the impacts on forest and woodland product management would be the same as Alternative 1.

The impacts from snag and GTR requirements would be the same as Alternative 1.

Impacts from Forest and Woodland Products

Alternative 2 would have a PSQ range of 10,000-25,000 MBF derived from the BLM treating 5,000 acres of forest and woodland within the Decision Area per decade. In smaller forest parcels (less than 80 acres) high-yield silvicultural systems such as shelterwood, seed tree, overstory removal, and thinning from above would be used, while in larger parcels the emphasis would only be on thinning from above. Clear-cutting would only be used in lodgepole pine

forests, or during sanitation and/or salvage harvests. While shelterwood and seed tree systems are natural regeneration methods, artificial regeneration may be needed in some cases to supplement reforestation, such as after sanitation or salvage harvests. Intermediate stand treatments would be included in all forest management activity planning and would comprise approximately the same percentage of acres treated as in Alternative 1.

Alternative 2 would have similarities to both the No Action Alternative and Alternative 1. As in the No Action Alternative maximum sustained-yield is emphasized, but like Alternative 1 the wide PSQ range provides the latitude to conduct more treatments that focus on productivity, forest health sustainability and fuel reduction. Due to the atmosphere of litigation that pervades present day resource management, the predictability of supply would be a potential issue because a larger timber volume offered is generally accompanied by criticism and possible legal ramifications. Compared to the No Action Alternative the overall beneficial impacts would be greater. Impacts to timber supply would potentially be beneficial, major and long-term, while the beneficial impacts to productivity, forest health and fuel reduction would be moderate and long-term.

Alternative 3

Impacts same as Under Alternative 1

- Impacts from Vegetative Communities
- Impacts from Wildlife
- Impacts from Forest and Woodland Products

Alternative 4

Impacts from Vegetative Communities

Riparian and Wetland Management

Impacts would be the same as those described under the No Action Alternative.

Coniferous Forest Management (Old growth)

Alternative 4 places the highest emphasis on the maintenance and restoration of old growth forests. Ultimately, the acreage of old growth forest treated under this alternative may be greater than under Alternative 1, but it probably would not be much greater, making these alternatives quite similar. Also, the same silvicultural prescriptions and harvest methods would be used; thus, impacts under Alternative 4 would be the same as those described under Alternative 1.

Hardwood and Mountain Shrub Management

Alternative 4 would also place the highest emphasis on the BLM protecting and restoring hardwood and mountain shrub communities within the Decision Area. As described in the Impacts from Vegetative Communities: Impacts to Forest Vegetation: Hardwood and Mountain Shrub Management section, these restoration treatments would be to benefit overall ecosystem and landscape health, which could provide multiple funding sources and would likely result in more acres of restoration treatments than the other alternatives would achieve.

Like Alternative 1, a minimum treatment size parameter would be established. Within this treatment parameter, all conifers (excluding large, old individuals) would be cut; however, the size of the area would be expanded to within 200 feet of the stand boundary, and any merchantable conifer and hardwood trees cut during restoration activities would be harvested. Compared to the amended No Action Alternative, this alternative would have the greatest, long-term, beneficial impact on stand productivity and fuel reduction, while having a minor to moderate, long-term, beneficial impact on production of wood products.

Juniper Woodland Management

Alternative 4 proposes the greatest amount of BLM juniper treatment of all alternatives. The treatment acreage would increase to a range of 15,000 to 30,000 acres per decade within the Decision Area, which would correlate to a greater level of impacts. Thus, compared to the amended No Action Alternative, this alternative would have the greatest, long-term, beneficial impact on juniper woodland management, the native plant community being restored, and on fuel reduction. There would be a negligible, long-term, beneficial impact on production of SFPs. Again, should a local market develop, this alternative would have the greatest, long-term, beneficial impact on production of wood products.

Impacts from Wildlife

Under Alternative 4 the BLM would slightly increase the canopy closure requirement for forest and woodland products activities within the Decision Area to 35 percent. While this is only five percent more than Alternative 1, a requirement of 35 percent would exceed ideal silvicultural canopy closure levels on moderately productive ponderosa pine sites. This would make it impossible to effectively thin some dry site forests, which means thinning would not restore these stands to their full growth potential or optimum forest health and leave these stands overstocked. The adverse impacts on lower productivity stands would be greater than Alternative 1, range from minor to moderate, and be of long-term duration.

All other impacts would be the same as those described under Alternative 1.

Impacts from Forest and Woodland Products

Alternative 4 would have a PSQ range of 5,000-12,500 MBF on a decadal basis, with an emphasis on treating 7,500 acres of forest and woodland within the Decision Area per decade. Impacts from BLM forest and woodland products management would be the same as those described under Alternative 1. However impacts would be more widespread as an additional 2,500 acres of forest and woodland would potentially be treated, yielding up to 2,500 MBF more forest and woodland products per decade. Compared to the No Action Alternative, impacts to timber supply would be beneficial, moderate, and long-term, while the beneficial impacts to productivity, forest health and fuel reduction would be major and long-term.

*Alternative 5*Impacts from Vegetative Communities*Riparian and Wetland Management*

Impacts would be the same as those described under the No Action Alternative.

Coniferous Forest Management (Old growth)

The restriction under this alternative of allowing only PCT and/or prescribed fire to be used by the BLM for old growth forest maintenance and restoration would yield no commercial forest products within the Decision Area. Additionally, there would be a decreased benefit to forest health and fuels management due to the inability to do any mid- or general canopy thinning. Therefore, while impacts to long-term stand productivity would be beneficial, they could become minor and relatively short-term, because the stand would still be overstocked and any benefit gained would rapidly be lost to new in-growth. However, fuel reduction efforts would realize minor to moderate, relatively long-term, beneficial impacts. Obviously, in comparison to the No Action Alternative, the impacts to the production of wood products would be adverse, long-term, and major in magnitude.

Hardwood and Mountain Shrub Management

Alternative 5 would rely on natural forces and limited active BLM management to maintain and restore hardwoods and mountain shrubs within the Decision Area. Because no ground disturbing activity would be allowed, it would be unlikely that many stands would be treated over the life of the RMP. Furthermore, there would be no harvesting of commercial forest products. Compared to the No Action Alternative, this alternative would have a negligible to minor, long-term, beneficial impact on stand productivity and fuel reduction, while having a moderate, long-term, adverse impact on production of wood products.

Juniper Woodland Management

Under Alternative 5, active BLM management of juniper woodlands within the Decision Area would only occur in Phase I and II stands that have encroached on riparian and/or Wyoming big sagebrush communities. The lower stocking of Phase I and II stands, which correlates to a lower potential yield, and the exclusion of ground disturbance, would preclude nearly all opportunities to harvest forest products. Compared to the No Action Alternative, this alternative would likely have a negligible to minor, long-term, beneficial impact to juniper woodland management, the native plant community being restored, and on fuel reduction. There would be a negligible, long-term, beneficial impact on production of SFPs. This alternative would likely have no bearing on developing a local market for juniper wood products.

Impacts from Wildlife

Alternative 5 would have no BLM harvesting of commercial forest products within the Decision Area and silvicultural activities would be restricted to PCT. There would be no impacts from wildlife management.

Impacts from Forest and Woodland Products

Under Alternative 5 the BLM would not produce any commercial wood products and, therefore, would not have a PSQ. Only intermediate stand treatments, such as PCT and prescribed fire, would be implemented on approximately 2,500 acres of forest and woodland within the Decision Area per decade. These treatments would prohibit cutting trees greater than eight inches dbh and only partially meet the intent of reducing tree stocking to improve residual stand vigor and restore historic, pre-fire suppression forest structures. Sanitation and/or salvage harvests would also be prohibited, which would preclude any actions taken to remedy forest pest infestations, further exacerbating any decline in forest health. Artificial regeneration would be used for reforestation after fires or pest infestations.

The only economic benefits to local communities would be from contract work related to PCT, fuels reduction activities, and tree planting. This alternative would have far less benefit to forest and woodland products compared to the No Action Alternative. Impacts to timber supply would be adverse, major and, long-term, while the beneficial impacts to productivity, forest health, and fuel reduction would be minor and short-to long-term.

c. Cumulative Impacts

Cumulative impacts are defined as the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or otherwise) or person undertakes such actions.

Timeframe for Analysis: The timeframe for this analysis as it pertains to forest and woodland products will encompass the period that the BLM has been affecting the forestland under its management (approximately 60 years) and for the next 20 years, which is the presumed life of this proposed RMP revision.

Geographic Scope: As described under Vegetative Communities: Impacts to Forest Vegetation: Cumulative Impacts, the preponderance of forest vegetation within the Planning Area is managed by the USFS, with private ownership being the next largest manager, and the BLM managing just a small fraction of the acreage compared to these first two entities. Management of forest and woodland products on forested lands under other jurisdictions would not have an effect on the BLM's management of forest and woodland products; therefore, the geographic scope of this analysis will refer to the Decision Area.

No Action Alternative

The principle past management actions that have impacted the production and availability of forest and woodland products in the Decision Area are fire suppression and logging. Fire suppression has interrupted the natural fire regime within forests and removed this natural agent of ecosystem balance. When added to past logging practices that have removed the large, fire tolerant species and the lack of intermediate stand treatments (thinning), the resulting forest stands became overstocked, often with fire intolerant species such as grand fir. This condition has reduced the vigor and growth rates of desired individual trees predisposing them to insect and disease infestations and subsequent uncharacteristically large, stand replacing fires.

While stand-replacing fires have always occurred in forested ecosystems, they were far rarer than in recent times. Within the past 25 years two noteworthy stand-replacing fires were the Dooley Mountain Fires, which each burned approximately 25,000 acres of mixed ownership forests. These actions and the subsequent insect and disease infestations, and fires that resulted from them, have altered the historic range of species composition, structure, and distribution of commercially important conifer forest vegetation on the landscape.

The BLM has maintained records of past logging that date back to 1950, approximately four years after the BLM was created. Since then, approximately 20,300 acres have been treated, which have yielded approximately 123 MMBF of timber harvested or salvaged during this 60-year period (the actual number of acres impacted would be less than 20,300 because many stands have been entered more than once).

As stated in Chapter 3 under Forest and Woodland Products, approximately 111 MMBF of timber was harvested or salvaged by the BLM between 1950 and 1989 within the Decision Area. During this period, silvicultural systems focused on even-age management and removal of the largest, highest volume trees and averaged 6.3 MBF per acre. Since most of the sawmills in the area milled pine, the preferred species of harvest during this era was ponderosa pine.

Consequently, most of the old growth ponderosa pine (Yellowbellies) was harvested during this period and this “high-grading” of large pine, coupled with the interruption of the natural fire cycle, is what led to the current proliferation of overstocked, later-seral, shade tolerant species such as grand fir and, on some sites, Douglas-fir. An overstocked forest condition with an abundance of ladder fuels is considered to be the cause of current severe, uncharacteristically large fires.

The current BLM management direction, as stated in the No Action Alternative, is to harvest approximately 24 MMBF per decade, or 48 MMBF over the predicted 20 year plan lifespan. However, around the time the current Baker RMP (BLM 1989) was adopted, public land management agencies experienced a paradigm shift in the way they approached forest management. The new approach focused on restoring natural ecosystem processes such as the role of fire and on restoring historic forest composition and structure. Silvicultural systems are favored that remove the overstocked, later-seral, shade tolerant species and release fire tolerant species such as ponderosa pine and, on some sites, Douglas-fir and/or western larch. Typically stands are thinned from below and large, remnant trees are retained at historic stocking levels. Approximately 12 MMBF has been harvested or salvage logged from 2674 acres in the Decision Area during the 20-year period beginning in 1990. Excluding fire salvage logging, which tends to skew the volume per acre, present day volume per acre has averaged 2.6 MBF.

BLM forest and woodland management in the reasonably foreseeable future would most likely continue in the same manner as today. The production of wood products and the restoration of forest structure and composition would continue to be the goal; however, there is a question as to how much. Depending on the alternative selected, BLM forest management over the next 20 years could treat as little as 2,500 or as much as 7,500 acres per decade. The volume of wood products harvested or salvaged per decade could range from 0 to 25 MMBF. The range of potential cumulative impacts over the plan life would be 5000 to 15,000 acres treated and 0 to 50 MMBF of wood products harvested or salvaged within the Decision Area.

The No Action Alternative would continue the BLM’s current management direction described above. While this management direction is similar to the action alternatives described below, the lack of direction in regard to PSQ and an acreage target leaves some ambiguity in this alternative. Because of this, cumulative impacts are a little more difficult to assess, but it is anticipated that they would be beneficial to both forest and woodland products management and general forest health.

Alternative 1

Under Alternative 1 the BLM would have a decadal PSQ range of 5-10 MMBF and proposes to treat approximately 5,000 acres of forest and woodland within the Decision Area per ten-year period. Commercial thinning from below would be the primary silvicultural system used, which would have the intent of reducing tree stocking to improve residual stand vigor and restoring historic, pre-fire suppression forest structures. The treatment of these acres and the subsequent removal of wood products would reduce the FRCC, improve the resilience of these forest stands

when wildfire occurs, and improve their resistance to insect and disease infestations. An ancillary benefit of these treatments would be the enhancement of wildlife habitat, particularly old growth structure dependent species.

Beneficial cumulative impacts under this alternative would likely be greater than the No Action Alternative in regard to the number of acres receiving restorative treatments over the life of the RMP (10,000 acres). This figure would also apply to the number of acres having an improved FRCC, as well as improved wildlife habitat. However, the volume of forest products produced would potentially be lower than what might be realized under the No Action Alternative.

Alternative 2

Under Alternative 2, the BLM would have a PSQ range of 10-25 MMBF per decade and proposes to treat 5,000 acres of forest and woodland within the Decision Area per ten-year period. In smaller forest parcels (less than 80 acres) high-yield silvicultural systems such as shelterwood, seed tree, overstory removal, and thinning from above would be used, while in larger parcels the emphasis would be only on thinning from above. This alternative would effectively sustain forest health and productivity, but it would not place an emphasis on restoring historic, pre-fire suppression forest structures. Consequently, it would not be as effective as Alternative 1 or the No Action Alternative in improving FRCC or habitat for old growth dependent wildlife species. Therefore, beneficial cumulative impacts would primarily apply to a higher volume of sustained timber production.

Alternative 3

The cumulative impacts under Alternative 3 would be essentially the same as those described for Alternative 1.

Alternative 4

Under Alternative 4 the BLM would have a decadal PSQ range of 5-12.5 MMBF, with an emphasis on treating 7,500 acres of forest and woodland within the Decision Area per ten-year period. Impacts would be very similar to those described under Alternative 1; however, impacts would be more widespread as an additional 2,500 acres of forest and woodland would be treated, potentially yielding up to 2.5 MMBF more forest and woodland products per decade. Ironically, while this alternative places the highest emphasis on restoring historic, pre-fire suppression forest structures, which would improve FRCC and habitat for old growth dependent wildlife species, wildlife habitat objectives for canopy closure would inhibit the ability to fully restore old growth structure on drier site forests. Anticipated beneficial cumulative impacts would apply to the greatest acreage of all action alternatives and potentially yield the second greatest volume of forest products compared to the No Action Alternative, but could possibly be slightly less effective at reducing FRCC and restoring old growth structure than Alternative 1.

Alternative 5

Alternative 5 would prohibit the BLM's production of commercial wood products from the Decision Area and would only provide for the harvest of personal use SFPs such as firewood. Approximately 2,500 acres per ten-year period would be treated through PCT, which would partially achieve the objectives of restoring historic, pre-fire suppression forest structures, but would fall short by not reducing general canopy stocking or removing shade tolerant species from the general canopy of any stands. Continued overstocking would leave stands treated under Alternative 5 more susceptible to insect and disease infestations and would not effectively improve FRCC and habitat for old growth dependent wildlife species. Compared to the No Action Alternative, the cumulative impacts of this alternative would be adverse to forest and woodland products, as well as to general forest health.

3. LIVESTOCK GRAZING

This section analyzes the beneficial and adverse effects on livestock grazing that would result from implementing proposed management actions under the various alternatives. Comparison of impacts is based on the current state of grazing lands and the present management situation (i.e., the No Action Alternative).

Beneficial effects to livestock grazing stem from actions that increase forage, improve rangeland health, provide sustainable or predictable grazing use, or add acres to the grazeable area. Adverse effects result from actions that reduce, restrict, or interfere with grazing, such as allotment closures, seasonal restrictions, reductions in use or area grazed, or activities that disturb or harm livestock.

a. Indicators, Methods, and Assumptions

- This impact analysis for livestock grazing in the Decision Area is based on the following indicators, methods, and assumptions:
- Livestock grazing on public lands will be governed by applicable legislation and regulations, especially the Rangeland Standards and Guidelines (BLM 1997). Based on the existing situation as explained in Chapter 3, and as shown in Appendix 3.6, it is assumed that about 40 percent of all acreage being grazed is currently not meeting rangeland health standards (for reasons attributable to grazing). As already shown in Chapter 3, riparian/wetland watershed function (Standard 2) is the most common standard for rangeland health not being met; therefore, measures to control grazing to improve riparian zones would be the primary actions taken to make progress toward meeting rangeland health standards.
- Livestock grazing will continue, at some level, where it is sustainable and consistent with whichever RMP alternative is selected (except under Alternative 5a, where there would be no grazing).

- All alternatives will be compared to baseline data which includes:
 - The area presently in grazing allotments and being grazed is 388,342 acres.
 - The present level of active AUMs available under permits is 47,000AUMs.
 - Currently, actual use averages about 38,000 AUMs per year, which is only about 80 percent of the amount that could be authorized under existing preference limits. The remaining 20 percent falls in the category of voluntary temporary non-use for various reasons, including conservation and protection of the range, fluctuations in livestock numbers, and financial conditions. For purposes of analysis, the comparisons will be made in terms of potential use rather than actual use.
- Approximately 15 percent of the currently authorized AUMs of grazing are within C-category allotments where the BLM has limited grazing management options, as these allotments consist of small, isolated public land parcels surrounded predominately by private land. Grazing of these allotments is generally managed to concur with the way the adjacent private land is grazed, and the permittee is billed for the small number of AUMs on the public lands. Many of the grazing management actions analyzed do not pertain to C-allotments because of the minimal BLM management of these parcels.
- Where areas are closed to motorized use, permittees would be restricted to non-motorized transportation unless the BLM grants administrative access on a case-by-case basis.
- Increases or decreases in forage availability will be used to indicate whether effects from proposed actions under the various resource programs are beneficial or adverse to livestock grazing.
- Assessment of impacts on the grazing program will be based partly on direct evaluation of prescribed changes in grazing use (and resulting AUMs), and partly on expected indirect effects from changes in the economics of production.

Magnitude of Impacts to Livestock Grazing

This analysis defines levels of effects on livestock grazing as follows:

- Negligible:* Grazing operations would not be appreciably affected by increased or decreased costs or changes to forage quality and quantity. Average annual AUMs and the amount of land available to livestock grazing would remain constant.
- Minor:* Effects would be small but detectable and only slightly increase or decrease the cost of livestock grazing. Changes in AUMs or the amount of land available to livestock use would not exceed a 5 percent increase or decrease from the current level.
- Moderate:* Effects would be readily apparent and would somewhat increase or decrease the cost of livestock grazing. Changes in AUMs or the amount of land available to livestock use would not exceed a 15 percent increase or decrease from the current level.
- Major:* Effects would be obviously adverse or beneficial and would substantially increase or decrease the cost of livestock grazing. Changes in AUMs or the amount of

land available to livestock grazing would exceed a 15 percent change from the current level.

Short-term: Anticipated effects occur within 5 years of implementation.

Long-term: Effects generally occur after the first five years following treatment and persist for as many as 20 years (within the life of this RMP).

b. Impacts to Livestock Grazing

Impacts to livestock grazing in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources and Fisheries
- Soil Resources
- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Wildlife
- Fire and Fuels
- Cultural Resources and Resources of Importance to Tribes
- Visual Resources
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs

Impacts from Fisheries under all alternatives would be the same as identified under Impacts from Water Resources. As a result, these two resource management programs are combined for purposes of analysis.

Impacts Common to all Alternatives

Impacts from Fire and Fuels Management

Prescribed burns often involve minor, short-term, adverse impacts to livestock grazing due to resting the range to build up enough fuel to carry the fire, and post-fire rest to allow vegetative recovery. While the range is rested, the cattle would have to go somewhere else, most often private land, although a permittee with a number of allotments sometimes can shift the grazing to a different allotment. In the long term, impacts would primarily be beneficial and minor in the form of increases in livestock forage.

Impacts from Minerals (See also Lands and Realty)

In some places, mining operations would impact livestock grazing through the disturbances to cattle or gates left open. Some allotments would experience short-term, minor losses of forage. At the Decision Area level, these impacts would also be short-term and minor. In the long term, grazing areas would be restored through reclamation of disturbed lands; however, the reclaimed mined sites may not return to full potential and may remain less productive for livestock grazing. Although the acreages of lands that would be withdrawn from mineral entry vary across the alternatives (See Table 2.24 in Chapter 2), the impacts on grazing would be minor under every alternative (except Alternative 5a which involves no livestock grazing). For example, although Alternatives 4 and 5 propose the largest areas for withdrawal from mining, much of the acreage falls into allotments that are no longer grazed (See Table 2.18 in Chapter 2), resulting in impacts on forage that would be similar to the other alternatives.

Impacts from Cultural Resources and Resources of Importance to Tribes

Where mitigation measures are applied to livestock grazing in order to protect cultural resources (or resources of importance to the tribes), there would be a minor negative impact to livestock grazing. Protection measures may require the construction of exclosures to keep livestock from congregating around water sources, moving salt grounds, and/or relocating livestock watering troughs. Some mitigation measures could involve changes in grazing schedules or a reduction in livestock numbers and thereby increase the impact to moderate for the livestock permittees involved, but impacts over the Decision Area would still be minor and long-term.

*No Action Alternative*Impacts from Water Resources and Fisheries

The No Action Alternative states that additional riparian exclosures would be built as needed. Exclosures to protect riparian vegetation would remove only minor amounts of available forage because the exclosures would be relatively small, and grazing would shift from forage along the riparian zone to forage outside the riparian zone. Exclosures, however, can present obstacles when moving cattle and can sometimes trap cattle or calves. In addition, exclosures are costly to build and require more maintenance work than regular pasture fences because they receive extreme pressure from livestock and elk, and are commonly damaged by high-water flows. Grazing permittees would thus experience minor adverse impacts from exclosures.

Grazing systems would be developed under the No Action Alternative to enhance riparian habitat through planting, fencing, and offsite water developments. New grazing systems for rest and rejuvenation of riparian vegetation could involve moving cattle more frequently and shifting grazing to different seasons. Such management changes would typically result in increased operating costs to the permittee. Such adverse impacts would be minor and short-term.

Impacts from Soil Resources

Under the No Action Alternative, intensive management of watersheds intended to improve soil resources and minimize erosion would have negligible, short-term adverse impacts and negligible, long-term beneficial impacts.

Impacts from Vegetative Communities

Under the No Action Alternative, grazing would be restricted in areas of poor or fair riparian condition through season of use, utilization levels, and livestock numbers. This could involve more frequent cattle moves, the shifting of grazing to different seasons, and cause minor reductions in the amount of grazing, both in the short and long term. Such management changes would typically result in increased operating costs to the permittee. Beneficial long-term impacts would occur from more stable and productive riparian zones, with minor improvements in forage.

Grazing would be restricted for 2-5 years following range rehabilitation projects. These rest periods would result in short-term, minor reductions in grazing. In the long term, however, impacts would be minor and beneficial due to improved forage conditions.

Grazing utilization levels established in the Ironside Rangeland Program Summary (BLM 1981) would be continued under the No Action Alternative. In the past, managing for these utilization levels has resulted in minor grazing reductions (see Chapter 3), which would probably continue and result in minor long-term losses in available forage; however, better range conditions would result in minor, long-term improvements in forage quality.

Impacts from Invasive Plants and Noxious Weeds

The No Action Alternative states that proper grazing management would be emphasized following weed control. This could involve some degree of deferral or rest to prevent re-infestation, which would result in minor, short-term reductions in grazing. Minor, beneficial impacts would occur in the long term due to improved forage conditions.

Impacts from Wildlife

Impacts from wildlife management would be negligible under the No Action Alternative because HMPs would neither appreciably decrease the forage for livestock nor increase the costs of grazing.

Impacts from Special Status Species

Impacts from special status species would be negligible under the No Action Alternative because HMPs would neither appreciably decrease the forage for livestock nor increase the costs of grazing.

Impacts from Visual Resources

Under the No Action Alternative, some range improvement projects in Class I or Class II zones could need to be modified because of visual management stipulations, which could result in increased costs to the livestock operator (e.g., a water tank might have to be painted, or a proposed fence line might have to be diverted to a route where it is more difficult to maintain). Adverse impacts would range from negligible to minor and be short-term.

Impacts from Forestry and Woodland Products

The No Action Alternative specifies that posts, poles, and other woodland products would be harvested on 37,273 acres, and that timber would be harvested on 25,353 acres. Such harvesting would increase grass understory in juniper and forest areas, resulting in beneficial, long-term, minor impacts to livestock grazing (Miller *et al*, 2005).

Impacts from Livestock Grazing

Total AUMs Grazed

Under the No Action Alternative, minor reductions in grazing would continue to occur from restricting livestock grazing through seasons of use, levels of utilization, and/or livestock numbers and distribution. There already has been a reduction in grazing levels of about 8,000 AUMs between the level existing at the time of current Baker RMP (BLM 1989) and today's level of 47,000 AUMs. This reduction was due to land disposals, changes in management jurisdiction, and the monitoring, evaluating, and adjusting of grazing systems and stocking levels as appropriate. Such reductions typically result in increased operating costs to the permittee because alternative forage has to be found to replace the forage lost. Overall, this would result in adverse impacts ranging from minor to moderate, depending on the individual permittee and amount of reduction in their allotments.

Grazing in the Grande Ronde/Joseph Creek Area

Over 7,000 acres in the Grande Ronde ACEC were acquired by BLM since 1989, the date of the current Baker RMP (BLM 1989). Of this total, approximately 3,000 acres fall within existing grazing allotments (#6517, #6548, #6572, and #6594), with the remainder outside of any allotments. The current situation (which differs from the 1989 situation, where these then-private lands were grazed along with the BLM allotment) is that grazing is not allowed on these acquired parcels, even those within existing allotments. The decision of whether to graze these newly acquired lands has been deferred to the new RMP. Thus, these lands are currently not being grazed.

Grazing in Riparian Areas/ Exclosures

Under the No Action Alternative, BLM would continue to restrict and exclude grazing in areas where the livestock grazing results in significant resource damage. In cases where grazing is excluded, site-specific analysis would determine whether to build an exclosure or to exclude livestock from an entire pasture or allotment. Minor adverse impacts would occur if exclosures were built to restrict or exclude grazing. However, in comparison, major reductions in grazing would occur if instead of building exclosures, livestock were excluded from an entire pasture or allotment. There is no guidance under this alternative regarding when limited grazing inside riparian area exclosures can be allowed. The assumption being made here for analytical purposes is that there would be no grazing inside exclosures, but the long-term reduction in grazing opportunities due to the exclosures would be negligible over the Decision Area.

Temporary Nonrenewable Grazing

If an environmental analysis is done for a specific proposal and it shows no significant impacts, temporary nonrenewable grazing use could be allowed under the No Action Alternative. This would result in minor, short-term, beneficial impacts due to temporary increases in forage.

Post-seeding Rest Periods

Grazing would be restricted for 2-5 years following range rehabilitation projects. These rest periods would result in short-term, minor reductions in grazing. In the long term, however, impacts would be minor and beneficial due to improved forage conditions.

Mandatory Rest Periods

There are no circumstances when rest periods are mandatory under the No Action Alternative.

Adjusting Annual Grazing Periods

There is no provision under this alternative for adjusting annual grazing periods, but many AMPs state how much flexibility is allowed on individual allotments. The limited ability (in the absence of AMPs) to adjust grazing dates would result in minor, adverse, short-term impacts. Grazing periods would be shortened when weather or wet soils do not permit turnout on schedule. Adapting grazing management from year to year in order to address observed problems would be curtailed; for example, if the utilization from the previous year was observed to be too high at a critical growth stage, slightly adjusting the period of use to miss that growth stage would often not be possible under this alternative.

Impacts from Travel and Transportation

Areas closed to motorized use would consist of only 3,594 acres under the No Action Alternative, which would have negligible impacts to vehicle use by livestock ranchers. The large

acreage open to motor vehicles, however, would result in minor adverse impacts due to spread of weed seeds, gates being left open, and other interferences caused by recreationists driving amongst livestock.

Impacts from Lands and Realty

Most of the 20,000 acres available for disposal under the No Action Alternative consist of isolated tracts that support little or no grazing. Disposal of lands that are grazed would result in negligible impacts to livestock grazing, because these lands would likely be incorporated into the adjacent landowners' private land base and would continue to be grazed. Land identified for potential acquisition would likely continue to be grazed under BLM management, which would also result in negligible impacts to livestock grazing operations.

Rights-of-way and facilities permitted on public lands, most commonly involved with energy development and transmission, would cause minor impacts where developments (such as wind farms) are put in. Impacts would include loss of forage (most of which would be restored in the long term by reseeding), disruptions to cattle herds, and increased motor vehicle traffic.

Impacts from ACECs

Under the No Action Alternative, a no grazing policy would continue on 80 acres in the Balm Creek and Sawmill RNAs, 2,230 acres in the Hunt Mountain ACEC, and 770 acres in the Oregon Trail ACEC. Impacts would be minor as such actions remove only about 230 AUMs from grazing in the Hunt Mountain ACEC, and minimal AUMs in the other ACECs. In Joseph Creek and Powder River Canyon ACECs, grazing would continue to be closely constrained by seasons of use, fencing, and limitation on the number of animals. Such actions, along with continued actions from biological opinions in ACECs with listed fish species, would negatively impact livestock grazing.

Impacts Common to all Action Alternatives

Impacts from Forestry and Woodland Products

Impacts from woodland products and timber harvests would be similar to those identified under the No Action Alternative, but much less widespread under all of the action alternatives due to fewer acres proposed for harvesting.

Alternative 1

Impacts from Water Resources and Fisheries

Under Alternative 1, grazing management changes designed to promote upward trends in riparian zones would involve changes to timing of grazing and increased frequency of having to move livestock. In other cases, there would be a reduction in AUMs. Permittees would have to

find other options to feed their animals (e.g., feed hay or shift to grazing on private lands) to replace grazing opportunities lost on public lands during certain seasons. This would increase operating costs for the permittees involved. Adverse impacts would be moderate.

This alternative removes grazing from certain streams. This could require fencing many segments of such streams into exclosures, which would result in reduced access to forage and water. Impacts would be minor, both short- and long-term, and experienced throughout the Decision Area. If exclosures would not be sufficient for restoring streams, lengthy rest periods may be necessary, which would result in increased costs from the loss of grazing use. Such impacts could be major for those permittees involved.

Impacts from Soil Resources

Under Alternative 1, hydric soils and biological crusts would be protected through restrictions on season of use. This would require shifting some grazing use to other lands, resulting in minor impacts to affected permittees due to increased operating costs. Authorizing summer use in only one year out of three (in sites with intact biological crusts that are needed to stabilize highly erosive soil) could limit some permittees' options for summer pasture. High intensity/short duration grazing systems would not be allowed where brief heavy use would occur on intact biological crusts, which would exclude innovations in range management that employ shorter use periods with longer rest/recovery periods. Rest periods after a fire would be longer when restoration of crusts is required before grazing, adversely affecting permittees whose allotments are affected by wildfires. While all these adverse impacts could be moderate to the affected permittee, overall impacts to livestock grazing in the Decision Area would be minor.

Impacts from Vegetative Communities

Ground Disturbance from Projects in Wyoming Big Sage Communities

This alternative reclaims losses of Wyoming big sagebrush rangeland at a 2:1 ratio. This would cause minor, long-term, beneficial impacts by improving vegetation and forage conditions more than under the No Action Alternative, where any required reclamation would be at a 1:1 ratio.

Range Reseeding Projects

Alternative 1 proposes new seeding projects for range improvement (exclusive of fire rehabilitation projects) of 1,500 to 2,000 acres to be implemented within the life of the plan. This would result in minor, long-term, beneficial impacts to livestock grazing due to establishing sustainable plant communities where the vegetation currently consists of undesirable annuals. Beneficial impacts to livestock grazing would be minor and long-term.

Upland Utilization Targets

This alternative sets upland forage utilization targets, which vary based on grazing system, key plant growth stage, biotic crusts, and wildlife habitat. Grazing which occurs during critical plant growth periods, vulnerable periods for biotic crusts, and critical periods for sensitive species (such as sage-grouse brooding and nesting periods) would have lower utilization targets than under the No Action Alternative. Such actions would involve changes to timing of grazing and increased frequency of having to move livestock, which would increase operating costs for the permittees involved. In some cases, there would be a reduction in AUMs. While individual permittees affected could experience moderate adverse impacts, adverse impacts would be minor over the Decision Area, with a loss in available forage of less than 1,500 AUMs, or 5 percent of the AUMs in category I allotments, which are the most likely allotments to be reduced. In the long term, more stable and productive rangelands would result in minor beneficial impacts.

Riparian Utilization Targets

Stubble height targets (and lengths of stream to which they apply), which are set under Alternative 1, would result in nearly all pastures with riparian concerns (an estimated at 90 percent, or more, of the pastures) that would likely see reduced levels of livestock grazing use in order to meet stubble height targets. Some of these pastures are relatively small and dry and have their fences designed so that a short stretch of creek is split between pastures. Restrictive stubble height targets around these short stretches of creek (often the pasture's only available water) would require the permittees to ride daily to move cattle away from water, reduce the amount of grazing in the pasture, or provide alternative sources of water, all of which increase operating costs. Therefore, overall impacts to some individual permittees could be major, while impacts over the Decision Area would be moderate. Impacts would be greater for those permittees operating smaller allotments with small sections of creeks, compared to those operating larger allotments that contain considerable stretches of creek that would allow for the distribution of cattle over a wider area. Riding frequently to move cattle out of riparian zones would be more cost-effective and feasible in the larger allotments, causing fewer impacts in those allotments if the time spent riding was adequate. The permittees who would be most heavily impacted would have to find other options to feed their animals (e.g., feed hay or shift to grazing on private lands) in order to replace grazing opportunities lost on public lands during certain seasons. In the long term, slight improvements in forage from more stable and productive riparian zones would result in minor beneficial impacts.

Seeding and Planting

Under Alternative 1, restoring annual grass communities with a mix of desirable grasses and bitterbrush would have a beneficial impact on grazing, with the scale of impacts dependent on how much acreage is improved. Planting bitterbrush in crested wheatgrass seedings would cause minor short-term beneficial impacts to overall forage conditions, although planting bitterbrush in fall use seedings could cause shifts in season of use to protect the bitterbrush from being grazed during the fall, thus causing negligible adverse impacts.

Rest after Fire or Rehabilitation

Alternative 1 specifies post-seeding rest periods after wildfires, with rest to continue until rehabilitation objectives have been achieved. Individual permittees could experience short-term, minor to major impacts from rest periods, depending on the size of the area affected and the length of the rest period. There are so many variables affecting recovery after fire that predicting when grazing could resume is very difficult. While rest periods that result in loss of grazing for more than 5 years would cause long-term impacts to individual permittees, overall adverse impacts to livestock grazing within the Decision Area from all rest periods would be short-term and minor.

Use in Annual-Dominated Range

Alternative 1 proposes no summer use in annual-dominated pastures. This would have negligible adverse impacts due to the lack of forage value in dried-up annuals during the summer months and the ability to use such pastures in spring or fall instead.

Sagebrush Cover

This alternative calls for increasing sagebrush cover in some areas (e.g., crested wheatgrass seedings) and reducing sagebrush cover in other areas (principally through fire), emphasizing wildlife habitat for sagebrush-obligate species. The net effect would be negligible adverse impacts, in both the short and long term from either decreasing crested wheatgrass or resting after fire.

Juniper Reduction Projects

This alternative proposes juniper reduction areas of 500 to 2,000 acres per year. This would increase forage, or at least slow or halt what have been steady declines in forage due to increased juniper canopy. Impacts would be beneficial, minor, and long-term. Short-term impacts from such reduction efforts would be adverse and minor due to the need to rest juniper treatment areas from livestock grazing.

Impacts from Invasive Plants and Noxious Weeds

Impacts from noxious weed management would be similar to that described under the No Action Alternative; however, beneficial impacts to livestock forage would be more intense due to new weed control strategies and herbicides. These impacts would be minor and long-term.

Impacts from Wildlife

Alternative 1 calls for changes in grazing systems to rehabilitate habitat quality for wildlife needs. This would often require changing the timing of grazing and increasing the frequency of livestock moves. In other cases, AUMs would be reduced. Permittees would have to find other

grazing options or feed hay to replace forage lost on public lands during certain seasons. As a result, operating costs would increase. Impacts would be moderate in some cases, but minor Decision Area-wide.

This alternative allows for reductions in sagebrush cover that enhance wildlife habitat. The sagebrush reduction projects would have the same impacts as described above under Impacts from Vegetation.

Sheep or goat grazing would not be authorized within nine miles of bighorn sheep habitat, making about half of the Decision Area unavailable for such use. There currently is little demand for sheep and goat use in the Decision Area. The only sheep allotment currently within nine miles of bighorn habitat is Pritchard Creek Allotment, and one small pasture of this allotment would remain available for use by sheep. Short-term, adverse impacts would thus be negligible to minor. In the long term, however, impacts could become minor to moderate, depending on future demand for sheep and goat grazing. If weed infestations spread, demand for grazing by livestock other than cattle could increase, including the use of goats for weed control.

Impacts from Special Status Species

Under Alternative 1, changes in grazing management are directed towards benefitting fish (e.g., providing more streamside shade and lowering forage use levels) and sage-grouse (e.g., providing sufficient understory in nesting/brooding areas). These actions would reduce use periods or AUMs of grazing, resulting in minor long-term adverse impacts to livestock grazing.

Impacts from Visual Resources

Impacts due to requiring modification of range improvements would be similar to those identified under the No Action Alternative, although the intensity of adverse impacts would be slightly higher under Alternative 1 due to more lands in the more restrictive categories. Overall, impacts would remain negligible to minor.

Impacts from Livestock Grazing

Total AUMs Grazed

Under Alternative 1, the proposed initial level of grazing use would be the same as the No Action Alternative.

Grazing in the Grande Ronde/Joseph Creek Area

Alternative 1 proposes grazing the acquired lands in the Grande Ronde River/Joseph Creek area only on a temporary-use basis, and only when needed to meet resource objectives. For the grazing lessees in this area, this would cause major reductions in the acreage available for grazing compared to the public and private lands available to them prior to the BLM's land

acquisitions. Over 7,000 acres were acquired in this area, 2,390 of which are within two allotments (#6517 and #6572) are within the Washington Grande Ronde ACEC and would no longer be grazed regularly under Alternative 1. In the smallest allotment (#6594), grazing could continue with the same nine AUMs as before if cattle were strictly controlled to stay off the 200 acres of acquired land. Another allotment, #6548, could still easily be grazed because the acquired lands are not intermingled and, thus, are more easily segregated. Restricting grazing in allotments #6517 and 6572 would result in lessees not having a predictable, constant forage source to fit into their annual grazing plan, and they would not be able to graze their existing allotment in any year when the BLM determines there is no need for a grazing treatment on the acquired lands mixed within that allotment. Because constructing fencing in steep terrain to separate the newly acquired public lands from the previously existing public lands is impractical and unlikely, non-use of the newly acquired land generally would force non-use of adjacent land. Impacts could be major and long-term for the two lessees involved because they would lose the use of all the 36 AUMs under their previously-existing BLM leases, as well as an unknown number of AUMs from the 2,390 acres of formerly private land that were previously grazed. Due to the small number of allotments and lessees involved, Decision Area-wide impacts would be minor.

Grazing in Riparian Area/Exclosures

Under Alternative 1, BLM managers would be given the option to authorize grazing in selected riparian exclosures if it can be accomplished while still meeting the objectives of the exclosure.

Once exclosures have been in place for years and riparian recovery has taken place, brief periods of controlled grazing could sometimes be authorized within these exclosures, particularly in larger ones. Having the riparian fences in place would allow strict control of any grazing allowed. Such periodic grazing in riparian exclosures would allow negligible additional forage for livestock, as well as benefit the plant vigor and forage quality by reducing the buildup of dense, dead vegetation that chokes out new growth on some meadow riparian zones. Overall, beneficial impacts would be negligible due to the minimal number of acres within exclosures that could be grazed.

Temporary Nonrenewable Grazing

Under Alternative 1 and conditional to site-specific analysis, temporary nonrenewable grazing use may be authorized to utilize additional production in years of favorable growing conditions. Allowing this temporary nonrenewable use would provide minor benefits to a few livestock permittees, and overall impacts would be minor for the Decision Area.

Post-seeding Rest Periods

Impacts from the post-seeding rest periods would be short-term, adverse, and minor as described above under Impacts from Vegetative Resources, Rest after Fire or Rehabilitation Projects.

Mandatory Rest Periods

Under the conditions outlined in Chapter 2, Alternative 1 provides for instituting a mandatory five-year rest period if standards are not met in a pasture and trend is not upward. The frequency of occurrences where rangeland health would still show insufficient improvement after two consecutive evaluation periods (in spite of the management changes that would have already been implemented) is difficult to predict with the existing information. Therefore, the frequency of implementing five-year rest periods to be imposed is uncertain. For this analysis, it is assumed that with yearly monitoring and adaptive management, permittees would do all they could to make significant progress toward meeting rangeland health standards in order to avoid the imposition of a rest period, so a five-year rest period would be rare. If implemented, the five-year rest would most often involve riparian zones and would result in minor amounts of reduced forage if exclosures were constructed (see No Action Alternative for the types of impacts caused by exclosures). Adverse impacts to the permittee in these instances would be minor. On the other hand, impacts could be major to the affected permittee if an exclosure is not built and the whole pasture is excluded from grazing. The five-year rest period on an entire pasture would only be imposed if majority ownership of the pasture consists of public lands. Alternatively, if more than 50 percent of the pasture were private, a shorter rest period, an exclosure, or other actions worked out in cooperation with the private landowner would be employed.

Adjusting Annual Grazing Periods

Allowing flexibility in adjusting the annual grazing period under Alternative 1 would increase management flexibility, increase efficiency of forage use, and respond to annual fluctuations in timing and amount of forage production. There would be negligible impacts to amounts of grazing, but the grazing dates would be managed more efficiently, leading to minor beneficial impacts from scheduling grazing at the best times for plant growth, rather than on inflexible dates that fail to take weather or other factors into account.

Impacts from Travel and Transportation

In areas closed to motorized use under Alternative 1, which would include public land without public access, permittees would be restricted to non-motorized transportation unless the BLM grants administrative access on a case-by-case basis. Similarly, the large acreages that would change from “open” under the No Action Alternative to “limited” under Alternative 1 (see Table 2.23 in Chapter 2) would result in less area where livestock permittees could go off-road with their motorized vehicles, unless BLM grants them administrative access on a case-by-case basis. Adverse impacts from the expansion of “closed” and “limited” areas and the reduction of “open” areas (compared to the No Action Alternative) would be minor to the permittees involved. The impacts would consist mainly of increased workload and inconvenience when motorized off-road access to livestock is desired but not allowed. Minor beneficial impacts would also occur due to fewer gates left open for public access and fewer weeds spread by motorized vehicles.

Impacts from Lands and Realty

Under Alternative 1, most land disposals and land exchanges would be on isolated tracts with little or no grazing use. Disposal of these lands would thus result in negligible impacts to livestock grazing. Nearly all of the grazing land that might be acquired (i.e., in Zones 1 and 2) is adjacent to grazed BLM allotments and is currently grazed under private management. It is likely that these acquired lands would be added to the adjacent BLM allotments, so there would be negligible impacts to livestock grazing operations. Alternative 1 would place 3,455 acres in the disposal zone, compared to about 20,000 acres classified for disposal under the No Action Alternative. Many of these 20,000 acres consist of small parcels of public lands intermingled with private lands and are grazed as C-category allotments. Usually these allotments would require major investments in fencing to manage, making such management very costly or nearly impossible. Ranchers who run livestock operations surrounding these small parcels of public lands would experience minor adverse impacts from limitations in management. For instance, private landowners would have to determine and mark unfenced property lines in order to confine any range improvements to their private land. Under this alternative, there would be less opportunity for purchasing the small parcels to add to their private land compared to the No Action Alternative.

Impacts from ACECs

Under Alternative 1, grazing would either be adjusted to meet ACEC objectives or not be allowed (see ACECs not available for grazing listed in Chapter 2, Table 2.20). In the ACECs where grazing would be allowed, the impacts of ACEC restrictions on grazing would be similar to what has been described for riparian management actions; impacts would involve changes to timing of grazing, increased frequency of having to move livestock, or reduction in AUMs. Permittees would have to find other options to feed their animals (e.g., feed hay or shift to grazing on private lands) to replace grazing opportunities lost on public lands during certain seasons. This would increase operating costs for the permittees involved. The ACECs not designated as RNAs, or not prohibiting grazing, would have negligible, adverse impacts on livestock grazing. Under this alternative, new ACECs in this category would include Virtue Flat (42,047 acres) and Denny Flat (3,840 acres). An ACEC given RNA status may, in the long term, require slightly more stringent grazing controls or reductions in amount of grazing, with minor impacts that would be negligible in the short term. This would apply to the new Magpie Peak ACEC/RNA (574 acres) proposed under this alternative.

Under Alternative 1, grazing would not be permitted on a total of 7,332 acres in the ACECs (155 acres in Balm Creek, 1,582 acres on Lime Hill, 2,529 acres on Hunt Mountain, 826 acres within Oregon Trail ACEC, 200 acres within Snake River Goldenweed ACEC, and 2,040 acres at South Fork Walla Walla). Although this is an increase of 4,252 acres compared to the No Action Alternative, impacts would be minor because only the Balm Creek section of Keating Riparian ACEC and the proposed Snake River Goldenweed ACEC are currently grazed (the reduction in current grazing would thus be approximately 80 AUMs). Impacts of taking these locations out of grazing (besides the loss of AUMs) include shifting more grazing pressure to nearby

unprotected riparian zones, reducing periods of use, and limiting options for pasture rotation plans. See Impacts from Livestock Grazing for other types of impacts due to not grazing ACECs.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Soil Resources

Impacts Same as under Alternative 1

- Impacts from Special Status Species
- Impacts from Invasive Plants and Noxious Weeds

Impacts from Water Resources and Fisheries

Impacts would be the same as described under Alternative 1, except the mandatory 5-year rest periods (see Livestock Grazing) would not be imposed under Alternative 2 when rangeland health standards were not met, although rest periods would still be an option. As a result, major, adverse impacts to livestock grazing would be avoided in most cases and overall impacts would be minor (also see Impacts from Vegetative Communities).

Impacts from Vegetative Communities

Ground Disturbance from Projects in Wyoming Big Sage Communities

Under Alternative 2, losses of Wyoming big sagebrush rangeland would be reclaimed at a 1:1 ratio, the lowest ratio among the action alternatives. Impacts would be similar to Alternative 1, albeit not as extensive because sagebrush would be reclaimed at a reduced ratio (1:1 compared to 2:1), with minor, beneficial, long-term impacts.

Range Reseeding Projects

Alternative 2 proposes new seeding projects of 1,500 acres over the life of the plan (exclusive of fire rehabilitation projects) in order to convert moderate to high potential non-native annual grass communities into better forage. Impacts would be similar to those described under Alternative 1, although potentially not as widespread due to 500 fewer acres that would potentially be seeded under Alternative 2.

Sagebrush Cover

Sagebrush reduction treatments in mountain big sagebrush types would make more forage available for livestock, resulting in minor, beneficial impacts, both in the short and long term.

Rest after Fire or Rehabilitation

Impacts from post-seeding rest periods and timing of use periods in annual-dominated pastures would be the same as described under Alternative 1.

Upland Utilization Targets

Impacts from grazing utilization levels would be the same as described under the No Action Alternative.

Riparian Utilization Targets

Stubble height targets (and lengths of stream to which they apply), which are set under Alternative 2, could result in reduced use over a majority (i.e., over 50 percent) of the pastures with riparian concerns. The remaining pastures would be managed using grazing systems or season-of-use to address riparian concerns, which could result in moderate adverse impacts as identified under Impacts from Water Resources in Alternative 1. All these actions to improve riparian zones could collectively result in shorter grazing periods and a need to find alternative forage and thus increase operation costs for the permittees. Frequent riding to move cattle away from riparian zones would avoid these adverse impacts, although it would also involve costs. While adverse impacts would be moderate and long-term for some permittees, overall impacts in the Decision Area would be reduced to minor compared to Alternative 1 as cutbacks in grazing would not be as widespread (Alternative 1 could result in reduced use over 90 percent of pastures with riparian concerns). Also differing from Alternative 1, smaller pastures containing sections of creek that total less than 1 mile would not be as restricted by stubble height targets under Alternative 2. This would lessen impacts to permittees with small allotments, compared to any of the other action alternatives. These permittees might still have to adjust to new grazing systems or seasons-of-use, but reductions in AUMs would be less likely.

Seeding and Planting

As under Alternative 1, planting bitterbrush in seedings and restoring annual grass communities with a mix of desirable grasses and bitterbrush would have beneficial impacts, with the magnitude of impacts dependent on how much acreage is improved.

More nonnative grasses would be included in seed mixes under Alternative 2 when compared to all the other alternatives, which would provide high-quality forage to livestock from grass species that are easily established, relatively persistent, and long-lived. Impacts would be long-term and minor throughout the Decision Area.

Juniper Reduction Projects

This alternative emphasizes juniper reduction to improve forage value. This focus on juniper reduction would provide more beneficial impacts than any other alternative's approach to juniper

control. Some juniper areas would experience moderate increases in forage, but the overall impacts across the Decision Area would be minor.

Impacts from Wildlife

Alternative 2 proposes changes in grazing systems to meet wildlife habitat needs. This would have the same types of impacts as described under Alternative 1; however, adverse impacts would be reduced (still minor) because habitats would only need to be maintained and not rehabilitated.

The reductions in sagebrush and juniper cover proposed under this alternative are addressed above under Impacts from Vegetation.

Impacts from Visual Resources

Under Alternative 2, range improvement projects would be more readily approved in VRM Class III or IV areas, which would cover the most acres of the Decision Area when compared to the other alternatives. Adverse impacts would thus be reduced to negligible in both the short and long term.

Impacts from Livestock Grazing

Impacts from Grazing in Riparian Areas/Exclosures, Temporary Nonrenewable Grazing, Post-seeding Rest Periods, and Adjusting Annual Grazing Periods would be the same as described in Alternative 1.

Total AUMs Grazed

Under Alternative 2, the proposed initial level of grazing use would be the same as the No Action Alternative.

This differs from Alternative 1 by adding new areas totaling around 400 AUMs for grazing on Hunt Mountain, Sutton Creek Exclosure, Elk Exclosure on Lookout Mountain, and would result in a minor, long-term, beneficial impact.

Grazing in the Grande Ronde/Joseph Creek Area

Under Alternative 2, grazing could be allowed on about 3,031 acres of the more than 7,000 acres of acquired lands in the Grande Ronde River/Joseph Creek area. This grazing would be restricted to four of the existing allotments, including two where acquired lands are so intermingled with previously allotted lands that existing grazing would be adversely affected under Alternative 1. Compared to Alternative 1, this would reduce adverse impacts to the lessees involved from major to minor, as it would allow them to continue using the same allotments on a regular basis. In addition, grazing would be strictly limited to maintain

Washington Grande Ronde River ACEC values. Carrying capacity and suitability of acquired lands for grazing would need to be determined for the allotments containing acquired lands. Such an analysis could determine the lands are not suitable for grazing or have very few available AUMs, or whether some fencing would be needed to protect certain areas. Such conclusions would increase the scale of impacts to the lessees involved, possibly from minor to moderate.

Mandatory Rest Periods

Under Alternative 2, in instances where rangeland health standards are not met in a pasture and trend is not upward, BLM managers would have discretion regarding whether to require a period of rest from grazing.

Impacts from Travel and Transportation

Compared to Alternative 1, Alternative 2 places more acreage in the “open” and “limited” travel management designations, and less in the “closed” designation (see Table 2.23 in Chapter 2). The impacts would be the same as described for Alternative 1, except there would be fewer impacts because of less restriction of OHVs. Impacts would still be minor.

Impacts from Lands and Realty

There are more acres available for ROWs and energy developments under this alternative than under Alternative 1. The impacts from Lands and Realty actions would be the same as described under Alternative 1, which are minor, except that the increased acreages available for ROWs and energy development would slightly increase the extent of adverse impacts to livestock grazing, affecting the most overall acres among the alternatives.

Impacts from ACECs

Impacts from restrictions on grazing would be the same as described under Alternative 1, with the exception that the extent of adverse impacts to grazing in terms of forage taken out of the grazing base because of ACECs would be slightly reduced. This is due to allowing grazing on Hunt Mountain (2,938 acres), which would only occur under Alternative 2. Adding this area to the forage available for livestock would have a long-term, beneficial impact, but the amount of added grazing for the Decision Area (estimated at 230 AUMs) would be minor.

Alternative 3

Impacts Same as under Alternative 1

- Impacts from Water Resources and Fisheries
- Impacts from Soil Resources
- Impacts from Invasive Plants and Noxious Weeds

- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from Visual Resources
- Impacts from Lands and Realty

Impacts from Vegetative Communities

Impacts from managing vegetative communities would be the same as described under Alternative 1, with the exceptions described below.

Range Reseeding Projects

Under Alternative 3, 1,000 acres of non-native annual grass communities would be seeded in range improvement projects (exclusive of fire rehabilitation projects) over the life of the plan, which is the least among the action alternatives. Impacts would be similar to those described under Alternative 1, although the extent beneficial impacts due to increased forage would be reduced.

Riparian Utilization Targets

Stubble height targets (and lengths of stream to which they apply), which are set under Alternative 3, would result in stubble height limitations on about 75 percent of pastures with riparian concerns, possibly reducing grazing use to below current levels and increasing operating costs for permittees. Adverse impacts from riding frequently to move cattle out of riparian zones would be reduced compared to Alternative 1, as such activities would be more cost-effective and feasible under Alternative 3 due to the generally larger areas involved. Impacts would be moderate over the Decision Area, but not as widespread as under Alternative 1. The remaining 25 percent of such pastures would be managed using grazing systems or season-of-use to address riparian concerns, which could result in moderate adverse impacts as identified under Impacts from Water Resources in Alternative 1.

Impacts from Livestock Grazing

Grazing in the Grande Ronde/Joseph Creek Area, Grazing in Riparian Areas/ Enclosures, Temporary Nonrenewable Grazing, Post-seeding Rest Periods, Mandatory Rest Periods, and Adjusting Annual Grazing Periods would be the same as described in Alternative 1.

Total AUMs Grazed

Under Alternative 3, the proposed initial level of grazing use would be 46,320 AUMs, a minor adverse impact, both short- and long-term (See Recreation-Related Impacts below for a full description of impacts).

Impacts from Recreation*Recreation-Related Impacts (Specific to Alternative 3)*

Under Alternative 3, grazing would be prohibited during the main hunting season (from September 1 to November 30) in actively-managed (I and M category) allotments that are not seedings or annual-dominated. While one-third of the I and M category allotments in the Decision Area could be affected to some degree by this action, about half those allotments involved would have minor adverse impacts (many permittees with fall use available as an option do not currently choose to graze in the fall, usually due to water issues or weather, and some others can switch seasons or switch to other lands for fall). Impacts in some high-elevation summer allotments, which are often prime big-game hunting areas, would be minor because cattle would only need to be removed a few weeks earlier than they are currently removed. There would be no impacts in a minority of fall-use allotments where fall grazing would not be eliminated because the vegetation is primarily nonnative grass seedings or annual range. Such vegetation is better suited for alternate spring/fall grazing, and such pastures are usually not desirable big-game hunting areas.

The other half of the allotments involved, consisting of about one-sixth of the I and M category allotments in the Decision Area (those that are currently fall/spring use and have native vegetation), would have major adverse impacts. Eliminating the fall grazing under Alternative 3 could leave spring as the only season available for grazing. This would increase operating costs for the permittees involved because they would need to find alternative means of providing feed to their livestock during the fall. Assuming that grazing would be lost and not just transferred to a different season, impacts would be major for this group of fall-use allotments. In many of these allotments over the last 20 to 30 years, there has been a switch from mid-summer grazing on public lands to spring/fall grazing, so the same permittees who previously had to find replacement summer range would now have to find replacement fall range. Adverse impacts would be moderate over the Decision Area because of the percentage of permittees that would be affected and the amount of grazing they would lose.

Beneficial impacts of not having grazing during hunting season include fewer gates being left open by hunters. Besides being a nuisance, gates left open can cause extra work for the rancher and can allow unauthorized use of riparian zones and pastures being rested or deferred. With the utilization targets being implemented in riparian zones (see Impacts from Vegetative Communities above), there is a good chance that the fall use period would be cut short to meet these targets. As a result, the loss of forage during hunting season may mean little difference from implementation of the riparian stubble height/browse utilization targets alone. Using riders during hunting season constantly to herd cattle away from riparian zones can present more difficulty than at other seasons, and might not be accomplished as effectively as needed.

Under Alternative 3, grazing would be removed or reduced in areas of high recreational value if there are persistent conflicts with recreational users. In order to reduce such conflicts, grazing could be separated from concentrated recreation areas by changing the season of use or by

fencing, which would result in minor impacts in terms of increased costs to the livestock operator. In areas where dispersed recreation and wilderness-type experiences are more important, eliminating conflicts may require abolishing grazing use from an entire pasture or allotment, which would result in major adverse impacts to individual permittees. Nearly 8,000 acres would be removed from livestock use under Alternative 3 in order to facilitate OHV recreation. Long-term adverse impacts would be major to the few permittees affected by the OHV play areas, while Decision Area-wide impacts would be minor.

Impacts from Travel and Transportation

The impacts of Alternative 3 would be fall between Alternative 1 and Alternative 2, with the same type of, but fewer, impacts as described under Alternative 1, but more than under Alternative 2. These would still minor in scale, with adverse impacts being more noticeable than beneficial ones. The main difference for livestock grazing is that this alternative has more acreage in the “closed” designation than Alternative 2, but otherwise is very similar.

Impacts from ACECs

Impacts from managing ACECs would be similar to what was described under Alternative 2, with the exception that the management actions for Sawmill ACEC would cause the loss of an additional 445 acres and 75 AUMs from grazing.

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Visual Resources
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Special Status Species (Wildlife)

Impacts from Water Resources and Fisheries

Under Alternative 4, there would be much more stream restoration (80 miles per year in this alternative compared to 50 in Alternative 1). This would include more expansive riparian exclosure projects than in Alternatives 1-3. Impacts from water resources and fisheries would be very similar to Alternative 1, and would still be moderate.

Impacts from Soil Resources

Under Alternative 4, where intact biological crusts are present and needed to stabilize highly erosive soil, there would be no summer grazing at all (Alternatives 1 and 3 allow summer grazing in one out of three years). This would result in moderate, long-term reductions in grazing in limited areas, but impacts across the Decision Area would be minor. Otherwise,

impacts from the management of soil resources would be the same as described under Alternative 1.

Impacts from Vegetative Communities

Ground Disturbance from Projects in Wyoming Big Sage Communities

Impacts from reclaiming losses of Wyoming big sagebrush rangeland would be similar to those described under Alternative 1, although improvements in grazing conditions would be more widespread due to reclaiming at a 3:1 ratio under Alternative 4. Overall, long-term, beneficial impacts would remain minor.

Impacts from range reseeding projects, rest after fire or rehabilitation, and use periods in annual-dominated pastures would be the same as described under Alternative 1.

Impacts from post-seeding rest periods and timing of use periods in annual-dominated pastures would be the same as described under Alternative 1.

Upland and Riparian Utilization Targets

Under Alternative 4, light-stocking rates would be set, with the goal of light utilization on uplands or 6-8 inch stubble heights in riparian zones. These actions would result in major reductions to grazing throughout the Decision Area. Using one-eighth of a mile stream segments as the minimum for stubble height monitoring would place stringent stubble height limitations on all pastures with any riparian concerns, even on short segments of stream that essentially function as water gaps (i.e., stream segments left unfenced so livestock can have access to water). Most pastures with such restrictive stubble height targets would end up with grazing periods limited to three weeks or less, and small or relatively dry pastures with minimal riparian zones would be limited to less than two weeks. Overall impacts to individual permittees and grazing on the Decision Area as a whole would be long-term and major, resulting in the most drastic cuts in use and the most widespread impacts among all alternatives that set stubble heights.

Crested wheatgrass pastures would be maintained at light utilization levels under Alternative 4, which would usually result in shortened grazing periods. Light use of seedings would also result in long-term declines in forage production because of the development of “wolf plants,” as well as less “tillering” in crested wheatgrass plants that are not grazed. Light land use in seeding results in leaving a large number of plants totally ungrazed. If crested wheatgrass or closely related species are left ungrazed, they develop dense bunches of dry, unpalatable old plant material (i.e., wolf plants) that livestock and wildlife refuse to eat, and the vigor of such wolf plants declines as more and more dead material accumulates. Absence of livestock trampling means the excess standing dead material is not knocked down into contact with the soil, where it could decompose more rapidly. In addition, reductions in grazing levels can also reduce the growth of additional new young plants (i.e., tillers) around the base of older plants/grasses, thus

reducing ground cover and grass production. The long-term, adverse impacts of light utilization levels in seedings would be minor and includes increased costs for forage to replace what gets lost over time as vegetation declines.

Seeding and Planting

Under Alternative 4, high to moderate site potential areas in non-native grass seedings would be reseeded with native species. Restricting range rehabilitation projects to only native plant species would require longer establishment periods for many natives, resulting in longer rest periods. In addition, seeding failures would be more common, resulting in reduced ground cover and reduced quantity of forage. Overall, these adverse impacts to livestock grazing would be minor.

Juniper Reduction Projects

Beneficial impacts from juniper control would be more widespread under Alternative 4 compared to Alternatives 1, 3, or 5, but less widespread than under Alternative 2. Impacts would be long-term and minor Decision Area wide, but could be moderate in some allotments.

Impacts from Wildlife

Under Alternative 4, the area off-limits for sheep or goat grazing would be extended to a 30-mile radius around bighorn sheep habitat, compared to 9 miles under Alternatives 1-3. This action would directly affect two of the only three permitted sheep operations on public lands in the Decision Area. These two would be required to move their public land sheep grazing to private land (and they would probably convert to another kind of livestock on their existing sheep allotments). One of these two sheep allotments affected is a C-category allotment with scattered parcels of public land totaling only about 200 acres out of a 25,200 acre allotment, or less than 1 percent of the land area in the allotment, and only 15 sheep AUMs. Consequently, there would be only minor impacts to this one permittee. However, there would be major impacts to the other permittee because this ranch would no longer be able to use any of its 416 AUMs of sheep grazing privileges which are on public lands.

There would be no opportunity inside the 30-mile radius to trail sheep or goats across public lands when moving between different private lands, so owners would be required to truck their animals instead, which would increase their operating costs. In the long term, overall impacts would be minor to moderate, depending on future demand for sheep and goat grazing. Other impacts would be the same as those described under Alternative 1.

Impacts from Livestock Grazing

Impacts from Post-seeding Rest Periods and Adjusting Annual Grazing Periods would be the same as described for Alternative 1.

Total AUMs Grazed

Under Alternative 4, the proposed initial level of grazing use would be 42,140 AUMs, a reduction which would be a moderate, adverse impact.

Pastures and allotments identified for no grazing under Alternative 4 include some in the Snake River/Brownlee Reservoir area where steep terrain concentrates grazing use in riparian zones and suitability of the range for cattle is sometimes questionable. Conversion to sheep is not an option because of the presence of bighorn sheep in this area. No grazing would also occur in some pastures in the Keating Highway Allotment for sage-grouse habitat issues and the Ruckles Creek Allotment for recreational issues in the Virtue Flat OHV Play Area. Eight permittees grazing livestock in the Snake River/Brownlee Reservoir allotments would lose 3,500 AUMs, while two in the Keating Highway/Virtue Flat area would lose 400 AUMs. The short- and long-term impacts would be major to individual permittees, but moderate over the Decision Area.

Grazing in the Grande Ronde/Joseph Creek Area

All grazing use in the Grande Ronde River ACEC and Joseph Creek ACEC would be terminated under Alternative 4. Nineteen lessees are currently grazing cattle on public lands within these ACECs and would experience major, long-term, adverse impacts. Fourteen of these lessees would lose their entire BLM grazing lease. All lessees collectively would permanently lose a combined 950 AUMs and 76 percent of the land in their grazing allotments. They would also have to incur substantial costs to construct fences to keep their private lands separated from public lands. The short- and long-term impacts would be major to individual permittees, but minor over the Decision Area.

Grazing in Riparian Areas/Exclosures

Under Alternative 4, all riparian exclosures would be specified as unavailable for grazing for the life of the RMP, and the AUMs of forage within these exclosures would be removed from the active AUMs listed under the grazing permit. This action would remove approximately 2,200 acres from grazing and 400 AUMs from grazing permits. This would be a minor adverse, long-term impact.

Temporary Nonrenewable Grazing

Temporary nonrenewable use to trailing or for specific vegetation treatments would be limited under Alternative 4. This would allow lesser amounts of such use than under the No Action Alternative, Alternative 1, and Alternative 2. The limitations placed on authorizing this type of use would result in minor, adverse impacts to a few permittees and negligible impacts throughout the Planning Area.

Mandatory Rest Periods

Under Alternative 4, where rangeland health standards are still not met and trend is not upward in a pasture after two consecutive evaluation periods (in spite of the management changes that would have already been implemented), grazing would be eliminated for the life of the RMP. How often this might occur is difficult to predict with the existing information. For this analysis, it is assumed that permittees would do all they can to make progress toward meeting rangeland health standards to avoid the loss of their permit, so occurrences would be rare, and overall impacts would be minor. However, when the action does occur, impacts would be major and long-term to the permittees involved.

Adjusting Annual Grazing Periods

Under Alternative 4, adjusting annual grazing periods would only be allowed where there is specific flexibility identified under an individual permit or AMP, and impacts would be the same as under the No Action Alternative.

Impacts from Travel and Transportation

Where there is no public access across private lands, the public lands involved would be closed to motorized use for the life of the RMP under Alternative 4, resulting in more long-term restrictions to permittees' motorized vehicles than under Alternatives 1-3. Closing more Public Lands to motorized use compared to the other alternatives (31 percent of the Decision Area would be "closed" under Alternative 4) would increase the extent of beneficial impacts due to limiting the spread of weeds, gates being left open, and other troubles associated with public motorized use. However, it would also result in minor to moderate adverse impacts from increased workload and inconvenience when motorized off-road access to livestock is desired but not allowed. The BLM could still grant administrative access on a case-by-case basis in "closed" or "limited" areas, but, on balance, this alternative would present the most travel restrictions to livestock permittees of all the alternatives that allow grazing.

Impacts from Lands and Realty

Alternative 4 provides less acreage available for ground-disturbing developments compared to Alternatives 1, 2, and 3. Thus, there would be less adverse impacts to livestock grazing from Lands and Realty actions. The nature of the impacts would be the same as described under Alternative 1 and the scale would be minor.

Impacts from ACECs

Impacts from managing ACECs would be similar to what was described under Alternative 3; however, all the Grande Ronde ACEC would have no grazing under Alternative 4 (see Impacts from Livestock Grazing above for details of impacts). Alternative 4 also includes the Denny Flat ACEC/RNA, which was not proposed under Alternative 3. Impacts to the Denny Flat Allotment

would be negligible in the short term, but could be minor in the long term if RNA status eventually drives more stringent grazing controls and reductions in amounts of grazing. Management of the other ACECs not designated either as RNAs or as no-grazing would have negligible impacts on livestock grazing.

Alternative 5

Impacts Same as under Alternative 1

- Impacts from Visual Resources
- Impacts from Water Resources and Fisheries
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Travel and Transportation

Impacts Same as under Alternative 4

- Impacts from Soil Resources
- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from ACECs

Impacts from Vegetative Communities

Impacts would be the same as described under Alternative 4, with the following exception. Under Alternative 5, the extent of juniper would be reduced only where juniper has encroached on riparian or Wyoming big sage community types. This restriction on areas of juniper removal would reduce the level of beneficial impacts compared to all other alternatives, but impacts would still be minor over the Decision Area.

Impacts from Livestock Grazing

Impacts from grazing in the Grande Ronde/Joseph Creek area, post-seeding rest periods, and adjusting annual grazing periods would be the same as described under Alternative 1.

Impacts from grazing in riparian areas/exclosures, temporary nonrenewable grazing, and mandatory rest periods would be the same as described under Alternative 4.

Total AUMs Grazed

Under Alternative 5, the proposed initial level of grazing use would be 35,760 AUMs, a reduction which would be a major, adverse impact, both short- and long-term.

Under Alternative 5, grazing would be removed from allotments with 303(d) listed streams. This action alone would remove 124,000 acres and 11,786 AUMs from grazing, eliminating 46

allotments out of the 352 in the Decision Area. Entire allotments would be taken out of grazing to benefit the watersheds where the 303(d) listed streams are located. This would be a somewhat different set of allotments than under Alternative 4, but the overall Decision Area impacts would be the same, but at a larger magnitude. Impacts would be major, adverse, and long-term at both the local and Decision Area level.

Impacts from Lands and Realty

This alternative has the largest acreage in exclusion zones among all the alternatives. Thus, adverse impacts to rangeland forage from Lands and Realty actions would be less than under any other alternative, because less acreage would be impacted by ground-disturbing activities. Otherwise, impacts from Lands and Realty actions would be similar to those under Alternative 1.

Alternative 5a

Under Alternative 5a, impacts from water resources, vegetative communities, invasive plants and noxious weeds, fisheries, wildlife, special status species, forestry and woodland products, minerals, and ACECs would not be applicable because livestock grazing would not be authorized in the Decision Area.

Impacts from Livestock Grazing

Under Alternative 5, grazing would be ended on all allotments in the Decision Area. This alternative is presented for comparative purposes.

Most livestock operators who currently have permits to graze livestock on public lands in the Decision Area would experience moderate to major impacts, depending on how dependent their grazing operations are on public lands. While most ranchers, especially those who only graze a small portion of their herd on public lands, could find other options to replace the lost forage, a few ranches would go out of business, and surviving ranches would face increased operating costs. Not only would they have to downsize or find private grazing lands to rent or acquire, but many would also be required to fence off public lands previously unfenced along public/private land boundaries (i.e., lands that are currently C-category allotments). Closing all allotments to grazing would thus result in major, long-term impacts to livestock grazing in the Decision Area.

Impacts from Lands and Realty

Lands would continue to be sold or acquired under all alternatives including Alternative 5. Ranchers could acquire lands identified for disposal and use them for grazing purposes. Lands acquired by the BLM through trades would be closed to grazing.

c. Cumulative Impacts

No Action Alternative

Although the above analysis is based on the Decision Area, the cumulative impacts on livestock grazing encompass the entire Planning Area, which includes public lands, as well as lands that are not managed by BLM. Past actions that have affected livestock grazing include human-caused surface disturbances (mineral development, recreation, and prescribed burning), wildfires, and historic grazing practices that have contributed to current ecological conditions. Economic conditions related to livestock grazing and ranching have resulted in declining numbers of ranchers and declining AUMs used on public lands (BLM 1980; see Chapter 3, Social and Economic Conditions).

Present actions affecting livestock grazing are mainly those that reduce available grazing acreage or the level of forage production in those areas. Key examples include wildfires, land disposals, OHV use, habitat restoration, and special designations that restrict grazing. Changes to grazing to meet rangeland health standards, especially in riparian zones, are being implemented on many allotments, decreasing or restricting grazing use while improving forage. Limitations on livestock grazing, such as riparian stubble height requirements, are also being implemented on USFS allotments, and there are private lands where improvements such as riparian exclosures (often funded by NRCS) are protecting environmentally sensitive areas. The cumulative effects of these actions parallel the effects of the BLM actions in improving land health and forage quality while reducing forage availability to a minor extent.

Future actions affecting livestock grazing would be similar to present actions and may include additional grazing restrictions associated with future species listings under the ESA. Ranchers in the Planning Area could anticipate increasing difficulty finding alternative grazing land due to local land developments and land market trends driven by anticipated population increases (Huntsinger and Hopkinson 1996). Although not mandated by policy, some period of short-term deferment probably would occur on private rangeland following fires. The cumulative impact of spreading weeds and invasive species (which displace better forage plants on both public and private lands in the Planning Area) could also adversely impact livestock grazing. In summary, the cumulative effects from the No Action Alternative over the Planning Area would be adverse and minor over both the short and long term.

Alternative 1

Combined impacts for all actions listed under Alternative 1 would result in estimated livestock reductions of over 5,000 AUMs in the Decision Area with full implementation of the RMP, which would be a long-term, moderate, adverse impact. The two primary causes of reductions in livestock use were estimated to be areas taken out of grazing and lighter grazing utilization, especially of riparian zones. Estimates of reductions in use needed to achieve utilization targets were based on comparing current utilization rates (from BLM monitoring files) to anticipated

utilization rates, and are based several studies (Tanaka et al. 2007; Kauffman and Krueger 1984; Lile et al. 2003; and Clary and Webster 1990).

The cumulative effects from Alternative 1, combined with past, present, and reasonably foreseeable actions over the Planning Area would be adverse and moderate in both the short and long term.

Alternative 2

Combined impacts for all actions proposed under Alternative 2, would result in estimated livestock grazing increases of 350 AUMs in the Decision Area with full implementation of the RMP, resulting in minor beneficial, long-term impacts. Cumulative effects of all actions, however, combined with past, present, and reasonably foreseeable actions over the Planning Area, would be somewhat countervailing due to added forage availability from new areas to graze, juniper treatments, and seedings, which would be balanced by some decreases in forage availability due to lower utilization rates in some areas (e.g., riparian) and managing grazing to meet rangeland health standards and wildlife needs. With this in mind, the overall impact for the Planning Area would be beneficial and negligible to minor in both the short and long term.

Alternative 3

Combined impacts for all actions proposed under Alternative 3 would result in estimated livestock reductions of over 11,000 AUMs in the Decision Area with full implementation of the RMP, which would be a major, adverse, long-term impact. The three primary causes of reductions in livestock use were estimated to be areas taken out of grazing, fall grazing no being longer available and unable to be transferred to another season, and lighter grazing utilization, especially of riparian zones.

The cumulative effects from Alternative 3 combined with past, present, and reasonably foreseeable actions over the Planning Area would be adverse and major in both the short and long term. The impacts would be more adverse than under Alternatives 1-2, mainly because of the additional areas taken out of grazing and the decrease in fall grazing.

Alternative 4

Combined impacts for all actions listed under Alternative 4 would result in estimated livestock reductions of over 16,000 AUMs in the Decision Area with full implementation of the plan, which would be a major adverse long-term impact. The two primary causes of reductions in livestock use were estimated to be areas taken out of grazing and lighter grazing utilization, especially of riparian zones.

The cumulative effects from Alternative 4 combined with past, present, and reasonably foreseeable actions over the Planning Area would be adverse and major in the short and long term. There would be greater adverse impacts to livestock than under Alternatives 1-3.

Alternative 5

Combined impacts for all actions listed under Alternative 4 would result in estimated livestock reductions of over 23,000 AUMs in the Decision Area with full implementation of the plan, which would be a major adverse long-term impact. The two primary causes of reductions in livestock use were estimated to be areas taken out of grazing and lighter grazing utilization, especially of riparian zones.

The cumulative effects from Alternative 5 combined with past, present, and reasonably foreseeable actions over the Planning Area would be adverse and major in both the short and long term. There would be greater adverse impacts to livestock than under Alternatives 1-4.

Alternative 5a

The combined effects of removing all public land grazing would be a major, adverse impact to livestock grazing in the Decision Area, and the loss of 47,000 AUMs would be a greater loss of grazing than under any other alternative.

The cumulative effects from Alternative 5 combined with past, present, and reasonably foreseeable actions over the Planning Area would be adverse and major in both the short and long term.

4. MINERALS

This section discusses direct, indirect, and cumulative effects on mineral development due to implementing proposed alternatives in this Draft RMP. While current potential for mineral development is moderate, as described in the elsewhere in this document, there are potential conflicts between objectives for mineral resource development and those for physical, biological, and cultural resource management. These conflicts would be resolved through mitigation measures, withdrawal of land from mineral entry, or through designating certain parcels unavailable for mineral development for example exclusion areas. Mitigation measures would be incorporated as terms, conditions, and stipulations in permits and leases.

There is limited information on the location and extent of mineral resources in Decision Area. Consequently, the first step in mineral and energy development is usually exploratory in order to determine the extent and economic feasibility of mineral resource extraction. Until a potential permittee or lessee approaches the BLM with an application or PoO, the location and extent of potential development activities are unknown. For this reason, the planning approach for energy and mineral management is to identify where these activities may conflict with the management of other resources and examine possibilities for mitigating conflicts or withdrawing lands from mineral entry.

Land use plan decisions have to recognize the rights under the Mining Law to enter, explore, and develop mineral resources on the public lands. A land use plan cannot change the rights under

the Mining Law. On areas open to mineral entry, or open with valid existing rights, the land use plan cannot be used to preclude mining or restrict certain types of mining. For example, land use plans cannot be used to "zone" areas where open pit mining is not allowed, ban cyanide use, prohibit placer mining, or limit the type or size of an operation.

Minerals Resources are divided into three categories: salable, leasable, and locatable. Salable minerals are also known as "common variety minerals" such as sand, gravel, stone, pumice, pumicite, common clay, and cinders. Leasable minerals include oil, gas, coal, phosphate, potassium, sodium, coal, and geothermal resources. Locatable minerals include gold, silver, copper, lead, zinc, Arsenic, molybdenum, uranium, gemstones, and numerous others.

Both salable and leasable mineral actions are discretionary. This means that the BLM may disallow these actions to occur, if it is determined that the value of the resource potentially impacted is greater than the value of the mineral resource itself. For example, new developments of salable and leasable minerals within the boundaries of an ACEC may not occur if there are potential conflicts with resource values for which the ACEC was created. In this instance, the BLM Area manager may determine that the development of the salable or leasable mineral(s) is incompatible with the ACEC and disallow the development of the mineral resource.

Locatable minerals actions are nondiscretionary and are divided into three categories: casual use, notice level, and plan level. Casual use level, as defined by 43 CFR 3809.5, refers to locatable mineral activities that ordinarily results in no or negligible disturbance of the public lands or resources. Such uses include the collection of geochemical, rock, soil, or mineral specimens, the use of hand tools, hand panning, non-motorized sluicing, and, possibly, the use of small portable suction dredges. The operator need not notify BLM for casual use, but must reclaim any casual-use disturbance created. Notice-level operations are those for which an operator must submit a notice, except for certain suction-dredging operations covered by § 3809.31(b). Notice level operations do not require NEPA because they are not federal actions. Plan-level operations are those for which an operator must submit a PoO and obtain BLM's approval. Plan-level operations require, at a minimum, an Environmental Assessment (EA), and for larger operations or where the operation is a "major" federal action, an EIS is required.

a. Indicators, Methods, and Assumptions

Minerals Indicators

Impacts on mineral development are considered adverse if they restrict or create higher costs for exploration, development, and/or extraction of mineral resources. Effects are considered beneficial if they increase access to mineral resources.

Impacts on mineral development are considered beneficial if more land becomes opened to development and fewer restrictions were applied. Proposed actions are considered adverse if more land becomes closed to development or more restrictions were applied.

Minerals Methods and Assumptions

Impact analysis and conclusions are based on the assumption that minerals will be managed and developed in accordance with all BLM, other federal, state, and local laws, regulations, and requirements. Impact analyses and conclusions are based on interdisciplinary team knowledge of resources in the Decision Area, a review of existing literature, and information provided by experts in the BLM or other agencies. Impacts are based on the preliminary design of the alternatives under consideration. All alternatives must comply with the Clean Water Act, Surface Resources Act, the Mining and Minerals Policy Act, the ESA, and other laws. The following assumptions have been applied to the analysis:

- The possibility of any activity within the Decision Area related to leasable commodities (oil and gas, solid minerals, and geothermal resources) is unlikely.
- Demand for salable and locatable minerals over the next 20 years would follow the current rate of resource development in a given area.
- Proposed activities on existing mineral leases or permits requested after implementation of the Baker FO RMP might be subject to surface use stipulations, such as NSO, Closed to Surface Use, and Timing Limitation.
- Surface-disturbing and other disruptive activities could occur at existing authorized facilities, which may result in impacts to other resources such as wildlife disturbance, degradation of visual quality, decreased recreation and wilderness values, soil erosion, loss of livestock and wildlife forage, and loss of wildlife cover.

Magnitude of Impacts to Minerals

The analysis of potential impacts is based on review of existing literature, geologic maps, field trips, site visits, and the expertise of BLM resource specialists. Effects are quantified where possible. In absence of quantitative data, the best professional judgment was used. Where appropriate, impacts are described using ranges of potential impacts or in qualitative terms. Impacts are based on those lands administered by BLM within the Planning Area. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:* The impact would be inconsequential. There would be no perceptible change in the availability of land for mineral development or to the economics of exploration and extraction.
- Minor:* The impact would be detectable. The beneficial or adverse impact would be measurable or perceptible, but it would only slightly affect the availability of land for mineral development or the economics of exploration and extraction.
- Moderate:* The impact would be readily apparent, whether beneficial or adverse. There would be a noteworthy, measurable, or perceptible change in the availability of land for mineral development or the economics of exploration and extraction.

Major: The impact would be severe. The adverse impact on mineral resources would be substantial. Actions would result in a dramatic change to the availability of land for mineral development or the economics of exploration and extraction.

b. Impacts to Minerals

Impacts to mineral exploration and development in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Soil Resources
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Special Status Species
- Fire and Fuels
- Cultural Resources
- Visual Resources
- Lands with Wilderness Characteristics
- Minerals
- ACECs
- Lands and Realty
- WSRs
- WSAs
- Public Safety

No Action Alternative

Impacts from Water Resources

There would be no impacts from the management of water resources under the No Action Alternative.

Impacts from Soil Resources

There would be no impacts from the management of soil resources under the No Action Alternative.

Impacts from Invasive Plants and Noxious Weeds

There would be no impacts from the management of invasive plants and noxious weeds under the No Action Alternative.

Impacts from Fisheries

There would be no impacts from the management of fisheries under the No Action Alternative.

Impacts from Wildlife

There would be negligible impacts from the management of wildlife under this the No Action Alternative, as all authorized mineral actions would be required to adhere to all applicable laws and regulations.

Impacts from Special Status Species

Under the No Action Alternative, state sensitive species would be managed as though they were officially listed pursuant to the ESA. Avoiding management actions that may result in disturbance of special status species habitats would have moderate to major, adverse effects in areas where mineral development may occur due to additional costs and delays. Impacts would be long-term.

Leasable minerals: Avoiding habitat where special status species may occur would remove or severely hamper leasing, or, at the least, impose costly mitigation measures upon operators in these areas. This action would have a major, adverse impact to Leasable minerals.

Locatable minerals: There would be no affect to notice level projects. The effects to plan-level actions would be that mitigations measures would be proposed to the operators during the NEPA analysis. These mitigation measures may delay startup times, reduce areas where mining would occur and otherwise place restrictions upon the operators. Operators would be asked to comply with these measures pursuant to the regulations governing mining operations on BLM administered lands. There would be a minor to moderate, adverse effect to plan-level operations.

Salable minerals: Avoiding habitat where special status species occur would remove or severely hamper the development of minerals materials within these areas by placing restrictive mitigation measures that could impose costs and restrict the operating times. This action would have a moderate to major, adverse effect on salable minerals.

The overall effect to minerals from this management of special status species would be moderate and adverse for the Decision Area.

Impacts from Fire and Fuels Management

This action is common to all alternatives. There would be negligible to minor impacts from the management of Fire and Fuels under this alternative. The use of wildland fire under any of the alternatives would result in short-term lack of access to mineral activities. However, if these treatments prevented larger future wildfires, then future access to mineral activities would be

protected. This action would have an overall minor, beneficial effect to the development of all minerals.

Leasable minerals: Depending on the type of leasable mineral, the effect of this action could be negligible to major.

Locatable minerals: To both notice and plan-level actions, the effects would be short-term loss of access. This would be a negligible to minor adverse short-term effect; however, the long-term effect would be a minor to moderately beneficial effect.

Salable minerals: The effects would be a short-term loss of access, this would be a negligible to minor adverse short-term effect; however, the long-term effect would be a minor to moderately beneficial effect. The overall effect to all minerals would be minor to moderate, beneficial for the Decision Area.

Impacts from Cultural Resources

There would be moderate, adverse impacts from the management of cultural resources under this alternative. All development of minerals must be in compliance with Section 106 of the NHPA, per regulation and law.

Leasable minerals: Compliance with section 106 could have major, adverse effects on leasable minerals in the areas where these resources occur by placing such restrictions and mitigation measures that these resources would become uneconomical, in addition to the fact that these actions are discretionary actions. As such, it is unlikely that these commodities would be developed.

Locatable minerals: Compliance with section 106 does not necessarily preclude development of locatable minerals, but the mitigation measures may place restrictions, delays, and costs such that the development of the mineral becomes uneconomical. These delays and additional costs could preclude plan-level work from proceeding. Since NEPA is not required for notice-level work, there would be negligible effects to notice-level operation. The effect would be minor to moderate to plan-level operations.

Salable minerals: In areas with known cultural resources, no Minerals Material contracts would be issued. This would remove these areas from production; however, the effects would be minor from this action due to the small areas removed.

Impacts from Visual Resources

All of the alternatives would manage VRM Classes I and II to minimize disturbance of visual resources. Surface use stipulations under these two classes would most certainly redesign, cancel, or mitigate mineral activities.

Leasable minerals: Class I VRM designations would remove these resources from development. Class II VRM designations would place such restrictive mitigation measures that costs would increase, which could be prohibitive to development of some leasable commodities. This management action would be a moderate to major, adverse impact to development of leasable minerals in these areas.

Locatable minerals: Operators of locatable mineral projects would be asked to comply with mitigation measures.

Salable minerals: VRM designations would have a major, adverse effect to the development of these commodities minerals by imposing cost prohibitive measures in areas designated as VRM I and II.

Impacts from Lands with Wilderness Characteristics

There would be major, adverse impacts from the management of wilderness characteristics under this alternative on a local scale. However, on the Decision Area scale, the effect would be minor to moderate.

Leasable minerals: These actions would preclude the development of most solid leasable minerals (coal, sodium, etc) and place costly stipulations on leasable fluid minerals. The mitigation measures that may be placed upon leasable minerals could preclude development by adding costs that make them uneconomical to develop, and would result in moderate to major, adverse effects in these areas.

Locatable minerals: At the notice level, there would be a negligible effect and at the plan level there would be negligible to minor adverse effect and operators would be asked to comply with mitigation measures.

Salable minerals: The management of lands with wilderness characteristics would preclude the development of salable minerals as they would deter from the wilderness characteristics. This would be a major, adverse effect in these areas.

Impacts form Minerals

The impacts from mineral development would decrease the availability of these commodities for future generations; however, the benefit of development of these resources outweighs the lack of development.

Leasable minerals: The impact from the development of leasable minerals would be minor through the life of the RMP.

Locatable minerals: A majority of the development of locatable mineral development is placer operations. These operations tend to be small and, as a general rule, consist of less than 20 acres

of total disturbance. The impact to notice-level and plan-level operations would be negligible to minor adverse, but the benefits of development of these locatable resources would be minor to moderately beneficial.

Salable minerals: The impact from the development of salable minerals would be minor though the life of the RMP.

This action is the same for all Alternatives.

Impacts from ACECs

The cumulative impacts from the management of ACECs under this alternative would be a major adverse impact to all minerals that are saleable, leasable, and locatable for the future development of minerals within ACECs. In Joseph Creek ACEC (~3,497 acres), NSO would have an adverse effect on leasable minerals. In Grande Ronde ACEC (~16,960 acres), NSO would have an adverse impact to leasable minerals. Keating Riparian ACEC (~2,223 acres), would be withdrawn from mineral entry this would have an adverse effect to locatable minerals. In Powder River Canyon ACEC (~5,880 acres), NSO would have an adverse effect to minerals leasing. In Unity Reservoir Bald Eagle ACEC (~356 acres), seasonal restrictions on leasable mineral development may place a “moderate adverse impact to the development of these minerals. Balm Creek ACEC (~1096 acres) would be withdrawn from mineral entry. This would have an adverse affect to all minerals. In Oregon Trail ACEC (~1,901 acres), NSO would have an adverse impact to leasable minerals as 721.81 acres of public land withdrawal would be sought. This action would have a moderate, adverse effect to locatable minerals. In Homestead ACEC, (~8,750 acres), seasonal restrictions would have a moderate, adverse effect to leasable mineral development. In South Fork of the Walla Walla River ACEC (~2,040 acres), NSO would have a moderate, effect on the development of saleable and leasable minerals.

Due to prohibiting development of mineral material resources within the ACEC boundary, unless needed on an emergency basis in order to protect ACEC values, this action would have a moderate, adverse effect to the development of saleable minerals within this area. In Sheep Mountain ACEC (5,398 acres), seasonal restrictions on oil and gas development would have a minor to moderate, adverse impact on the development of oil and gas within the boundaries of this ACEC. A total of 48,312 acres would be proposed for withdrawals under this alternative.

Leasable minerals: All ACECs would have a NSO stipulation for leasable minerals. This stipulation of NSO would adversely affect the development of these mineral commodities by placing burdensome and cost prohibitive measure on operators. Equipment and materials would not be allowed to be left on site. Furthermore, there would be none of the following: facilities for storage, office space, facilities of any type, power lines, pipelines, and infrastructure (e.g., fences, gates, and signs). All of these factors would add to the cost of development.

Locatable minerals: When lands are removed from mineral entry, it is considered an adverse effect. However, under the current conditions that exist, all prior existing rights would be

allowed to proceed. Claimants who wish to develop their mining claim(s) after the date of withdrawal would be subject to a validity examination and bear the cost of the exam prior to the approval of their plan of operation. The impacts to prior existing rights would be minor to moderate and adverse.

Salable minerals: Development of mineral material sites within the boundary of ACECs would be prohibited except under special situations. Overall, the impacts from this action would be minor to moderate and adverse.

Impacts from WSRs

Leasable minerals: These lands are closed to mineral leasing. The impact from this action would be minor within the Planning Area.

Locatable minerals: Under the current conditions there would be minor, adverse impact, as it removes these lands from minerals entry under the mining laws. All existing claims would be required to undergo a validity examination prior to the approval of a PoO, thereby adding costs to the operator. The impact would be negligible to minor and adverse within the Planning Area.

Salable minerals: These areas are not available to saleable minerals. For future development of saleable minerals, the effect would be minor and adverse within the Planning Area.

Impacts from Wilderness and WSA Management

Leasable minerals: Under all alternatives, the wilderness areas (~946 acres) would remain closed to leasable mineral development. All WSAs (~22,334 acres) would remain closed to leasing. These actions would have a moderate, adverse effect to leasable minerals.

Locatable minerals: The management of WSAs under the No Action Alternative would result in minor to moderate adverse impacts to the future development of locatable minerals would be minor to moderately adversely impacted from this alternative as it removes these lands from mineral entry. The effects would be minor and all existing mining claims would be required to undergo a validity examination prior to the approval of a PoO. Validity examinations must be done by a certified minerals examiner. The WSAs would not be withdrawn from locatable mineral development, but would be subject to more protective regulations, such as all proposed actions requiring a PoO. This management action would have a moderate to major, adverse effect on the development of locatable minerals.

Salable minerals: Under all alternatives, the wilderness areas (~946 acres) would, in most cases, remain closed to sale or free use of mineral materials. These actions would have a moderate, adverse effect to leasable minerals.

Impacts from Public Safety

There would be no impacts from the management of Public Safety under this alternative.

Alternative 1

Impacts same as No action

- Impacts from Fire and Fuels
- Impacts from Wilderness and WSAs
- Impacts from Minerals

Impact from Water Resources

The establishment of RMAs for streams and wetlands would hamper development of minerals within these areas.

Leasable minerals: Development would likely be severely limited by placing stipulations and mitigation measures, which would increase costs and may restrict operating schedules. These management actions would have a moderate to major, adverse effect on the development of leasable minerals within these areas. However, the overall impact to leasable minerals within the Planning Area would be minor, due to the scale of these RMAs.

Locatable minerals: At the notice level there would be a negligible impact from the development of RMAs. Plan-level operations would require NEPA analysis, and stipulations and mitigation measures would likely be developed and operators would be asked to comply with these stipulations and mitigation measures. This could increase costs and delay or restrict operations. This management action could have a moderate to major, adverse effect on locatable minerals, as most of the locatable mineral operations are placer operations and are located within the riparian areas. The overall effect to locatable minerals would likely be minor to moderate and adverse within the Planning Area for the life of the RMP. This result of the action would be the same for all alternatives.

Salable minerals: Development would likely be severely limited by placing stipulations and mitigation measures which would increase costs and may restrict operating schedules. These management actions would have a moderate to major, adverse effect on the development of salable minerals within these areas. However, the overall impact to leasable minerals within the Planning Area would be minor, due to the scale of these RMAs.

Impacts from Soil Resources

In areas with biological crusts, the requirement of an analysis of impacts in order to establish mitigation measures on all use applications under this action would have operators incur additional costs and cause delays on mineral exploration and development.

Leasable minerals: Analyzing impacts and installing appropriate mitigation measures could also preclude the development of leasable minerals in these areas. The resulting scope of these management actions cannot be analyzed at this time as it is not known where and to what extent these biotic crusts occur.

Locatable minerals: There would be no impacts to notice level operations as such operations are not federal actions. Plan-level operations, which require NEPA analysis on a case-by-case basis, would be required to install mitigations measures, which would add costs to such operations. Operators are already required to salvage topsoil pursuant to the §3809 regulations. Impacts to plan-level operations would range from moderate to major throughout the Planning Area for the life of the RMP.

Salable minerals: Analyzing impacts and installing appropriate mitigation measures could also preclude the development of salable minerals in these areas. The resulting scope of these management actions cannot be analyzed at this time, as it is not known where and to what extent these biotic crusts occur.

Impacts from Invasive Plants and Noxious Weeds

The requirement for weed surveys could delay, restrict, and add additional costs to the development and production of all minerals.

Leasable minerals: Delays, restrictions, and additional mitigation measures would have a minor to moderate, adverse affect on the exploration and development of leasable mineral commodities.

Locatable minerals: There would be no effect on notice level operations, but there may be adverse effects on plan-level operations due to resultant delays in the start time of the operations, which would lead to increased costs. This management action would likely have a minor to moderate, adverse effect on locatable minerals in the Decision Area for the life of the RMP.

Salable minerals: Delays, restrictions, and additional mitigation measures would have a minor to moderate, adverse affect on the exploration and development of salable mineral commodities.

Impacts from Fisheries

Under Alternative 1, the presence of special status species fish in listed waters would delay start times for mineral exploration and development, increase costs to operators, and potentially preclude the development of saleable and leasable minerals in watersheds where such actions could affect listed fish species. An overall, adverse impact to mineral resources would be minor for the life of the RMP.

Impacts from Wildlife

Mitigating developments to protect wildlife habitats would impose additional costs to operators by placing stipulations on operators in an effort to mitigate the impacts to these resources. At the plan level, it would likely be minor to moderately adverse due to additional costs and delays. Specific costs and delays could only be discussed on an individual operation basis. This action would preclude the development of salable and leasable minerals in these areas and, as such, this would have a major adverse impact to salable and leasable minerals in these areas. However, under the current conditions, the overall impact would be minor to the development of minerals for the life of the RMP.

Protecting wildlife habitats from disturbance during breeding, birthing, and winter seasons would delay exploration and limit mining of mineral commodities during the designated periods. This management action would severely limit the production of mineral materials (i.e., saleable minerals) because operations could only occur outside of breeding, birthing, and winter seasons. The wintering season lasts for up to 6 months in some locations, which is 50 percent of the time that the operation occurs. Furthermore, breeding and birthing seasons span several months for all big game species. This would adversely affect minerals exploration and development in most of the Decision Area. Locally, impacts would be major to leasable and salable minerals, and minor to moderate for locatable minerals.

Protecting thermal and hiding cover for deer and elk would have an adverse effect on minerals because development of most minerals commodities requires ground clearing. Protecting thermal and hiding cover would prevent such ground clearing from occurring, or would require additional mitigation, which would increase operating costs to all minerals.

Protecting cliffs, ledges, talus slopes, and unique habitats would have an adverse effect on minerals due to the fact that minerals are located in these areas. Such protection requirements could preclude the development of all minerals in these areas.

Requiring that development be mitigated to protect wildlife travel corridors and habitat connectivity would have an adverse effect on minerals if these corridors happen to be located within an area of mineral interest. In these areas, such requirements would increase costs, and/or preclude development and exploration of salable minerals altogether. It would severely limit the development of leasable minerals and would place prohibitive restrictions on locatable minerals. Impacts would, therefore, be site-specific and range from minor to moderate.

Leasable minerals: The impact from management of these resources would be minor to moderate within the Decision Area for the life of the RMP.

Locatable minerals: At the notice level, the impact from these management actions would be negligible; however, at the plan level the impacts would be expected to be minor to moderate and adverse for the Decision Area. Operators would be asked to comply with all mitigation measures.

Salable minerals: The impact from management of the resources would be moderate to major and adverse within the Decision Area during the life of the RMP.

Impacts from Special Status Species

Requiring special status review prior to ground-disturbing activities and subsequent mitigation would adversely affect all mineral development by delaying project start times.

Sage-grouse habitat management would have an adverse effect on minerals by placing costly delays and mitigation measures that could make the explorations and development of minerals in these areas uneconomical. Buffers around leks during the breeding season and life cycle of the sage-grouse basically remove these areas from any mining of salable and leasable minerals. When a PoO is proposed or when occupancy is proposed under the §3715, the BLM has the authority to impose mitigation measures. Since the bird is not a T&E species, the operator would be asked to comply with the measures that BLM may place on these birds. The buffer placed around leks would preclude these areas from the development of salable and leasable minerals. This would be a moderate to major, adverse effect in the areas where the leks occur; however, the overall effect would likely be minor to moderate on the Decision Area through the life of the RMP.

Requiring the creation of a new pond when mining ponds are reclaimed would have an adverse effect on minerals by placing costly delays and mitigation measures that may make the exploration and development of minerals in these areas uneconomical. The potential habitat for the Columbian Spotted Frog encompasses the entire Planning Area. The effect of this management action would be minor to moderate and adverse on all minerals through the life of the RMP.

Leasable minerals: The impact to leasable minerals would be moderate and adverse within the Planning Area throughout the life of the RMP.

Locatable minerals: At the Notice level there would be negligible impacts. However at the plan level stipulations and mitigation measures would be developed that would add additional time to the approval process thus causing delays. This would have a minor to moderately adverse impact to locatable minerals within the Planning Area for the life of the RMP.

Salable minerals: The impact from these management actions to salable minerals would be expected to be adverse at a moderate to major scale within the Planning Area for the life of the RMP.

Impacts from Lands with Wilderness Characteristics

Managing public lands for wilderness characteristics would increase costs of exploration and development, remove lands from development of salable and leasable minerals, and place cost prohibitive stipulations on locatable minerals. While these impacts would be major on 3152

acres of public lands where wilderness characteristics would be managed, overall impacts to minerals would be minor to negligible due to the small amount of public lands involved.

Leasable minerals: The removal or exclusion of these lands from ROWs would remove these areas from the development of leasable minerals. This would have a major, adverse impact to the development of leasable minerals in these areas; however, the overall impact in the Planning Area would be minor to moderate and adverse.

Locatable minerals: At the notice level, the impact would be negligible. At the plan level, mitigation measures would be developed, which, if adopted by the operators, could have major, adverse affect to the development of locatable minerals. However, the overall impact to locatable minerals development on the Decision Area would be minor for the life of the RMP.

Salable minerals: The removal or exclusion of these lands from ROWs and other permits would remove these areas from the development of salable minerals. This would have a major, adverse impact to the development of leasable minerals in these areas; however, the overall impact in the Decision Area would be minor to moderate and adverse.

Impacts from Visual Resources

All of the alternatives would manage VRM Classes I and II to minimize disturbance of visual resources. Surface use stipulations under these two classes would most certainly redesign, cancel, or mitigate mineral activities.

Leasable minerals: Class I VRM designations of 18,543 acres would remove these resources from development. Class II VRM designations of 241,779 acres would place such restrictive mitigation measures that costs would increase, which could be prohibitive to development of some leasable commodities. This management action would have a moderate to major, adverse impact to development of leasable minerals in these areas.

Locatable minerals: Operators of locatable mineral projects would be asked to comply with mitigation measures.

Salable minerals: VRM designations would adversely affect the development of these commodities minerals by imposing cost prohibitive measures. In areas under this alternative, there would be VRM I and II designations on approximately 260,322 acres of land, or 60.8 percent of BLM administered lands. This action would have a major, adverse effect to the development of salable minerals.

Impacts from Lands and Realty Management

There would be minor to moderate beneficial impacts from the management of Lands and Realty under this alternative. Indirect benefits would occur if land acquisitions were acquired. If access were secured, it would allow for the development of minerals on these lands.

Creating exclusion areas on 71,052 acres, or 16.6 percent, of BLM administered lands and avoidance areas on an additional 91,089 acres, or 21.3 percent of public land, would be a moderate to major, adverse impact. In excluded areas, there would be no development of leasable and salable minerals. In avoidance areas, restrictions and mitigation measures would severely hamper the development of both leasable and salable minerals. Currently, there are 8,696 acres withdrawn from minerals entry but, under this alternative, an additional 34,164.8 acres are proposed for withdrawal. This action would more than triple the withdrawn areas where there have been historic interests in the development of locatable minerals.

Leasable minerals: Approximately 162,141 acres, or 37.9 percent, of the 428,425 acres of public surface and minerals lands would be restricted to leasable mineral development under this alternative. Of these restricted lands, 16.65 percent would have no leasable mineral development. Management actions would have a moderate to major, adverse effect to leasable minerals.

Locatable minerals: For all areas except for Wilderness Characteristic areas, a plan of operation is required for development of locatable minerals pursuant to regulation. Operators would be asked to comply with stipulations and mitigations measures. The impact to locatable minerals would be minor to moderate and adverse for the Planning Area for the life of the plan.

Salable minerals: Approximately 162,141 acres, or 37.9 percent of the 428,425 acres of public surface, of public minerals lands would be restricted to salable mineral development under this alternative. Of these restricted lands, 16.6 percent would have no salable mineral development. Management action would have a major, adverse effect to salable minerals.

Impacts from ACEC

Under Alternative 1, 14 areas would be managed as ACECs (10 existing and 4 newly proposed), which includes withdrawal proposals for approximately 18,104 acres, which is 4.2 percent of the lands presently open to mineral entry where BLM manages both the surface and minerals estates. This would have a moderate to major, adverse effect to mineral development within the Planning Area. However, there is currently little interest in mineral development, and only areas with interest are proposed for withdrawal. The NSO stipulation would have an adverse effect on leasable minerals within the boundaries of ACECs.

Leasable minerals: Development of these minerals resources would be severely restricted within the boundaries of the proposed and existing ACECs. The imposed restrictions and mitigation measures, such as NSO, would, for all practical purposes, remove these areas from consideration for leasing. As a result, this would be a moderate to major, adverse impact to the future development of leasable minerals within the Planning Area. However, there has historically been little interest in the development of these commodities. It is expected that this action would have only minor impacts to the development of leasable minerals.

Locatable minerals: Withdrawing 18,104 acres of land with historic locatable minerals resources would have moderate to major, adverse effect on locatable minerals within the Planning Area for the life of the RMP.

Salable minerals: These areas would be located within avoidance areas, which would also restrict the development of salable minerals as the development of these minerals would in most cases be incompatible with the ACEC designations. While this would be a major, adverse effect within these areas, it would be a minor to moderate, adverse effect within the Decision Area for the life of the RMP.

Impacts from WSRs

The recommendation of Joseph Creek into the WSRs under this alternative and the designation of a VRM Class I would adversely affect the development of all minerals. However, this area is currently managed as an ACEC. The designation of a WSR on this ACEC would preclude the future development of all minerals, subject to valid existing rights.

Leasable minerals: This action would remove these lands from leasing. These actions would have a major, adverse effect to leasable minerals in these areas. However, across the Decision Area, the effect would be minor and adverse.

Locatable minerals: Lands constituting the bed or bank or within one-quarter mile of the bank of a designated or potential additional river are specifically withdrawn from mineral entry as stated in 16 USC 1280. This would preclude most placer operations from occurring within this area. This action would have a major, adverse effect within these designated areas. The overall effects within the Decision Area would be minor for the life of the RMP.

Salable minerals: This action would remove these lands from the development of mineral materials. This would be a major adverse effect to salable minerals within these areas. However, across the Decision Area, this effect would be minor and adverse.

Alternative 2

Impacts Same as under the No Action Alternative

- WSAs

Impacts same as under Alternative 1

- Water Resources
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fisheries
- Impacts from Cultural Resources

- Impacts from Facilities
- Impacts from Forestry and Woodland Products
- Impacts from Special Status Species
- WSRs

Impacts from Wildlife

Same as the Alternative 1, except mitigation measures would not conflict with development of minerals resources. It is expected that this would be a minor beneficial effect for the life of the RMP.

Leasable minerals: It is expected that this would be a minor beneficial effect for the life of the RMP.

Locatable minerals: Same as leasable minerals.

Salable minerals: Same as leasable minerals.

Impacts from Visual Resource Management

All of the alternatives would manage the VRM Classes I and II to minimize disturbance of visual resources. Surface use stipulations under these two classes would redesign, cancel, or mitigate mineral activities.

Leasable minerals: Class I VRM designations of 17,918 acres would remove these resources from development. Class II VRM designations of 109,096 acres would place such restrictive mitigation measures that costs would increase, which could be prohibitive to development of some leasable commodities. This management action would have a moderate to major, adverse impact to development of leasable minerals in these areas.

Locatable minerals: Operators of locatable mineral projects would be asked to comply with mitigation measures.

Salable minerals: VRM designations would adversely affect the development of these minerals by imposing cost prohibitive measures in areas designated as VRM I and II on approximately 127,014 acres of land, or 29.7 percent of BLM administered lands. This action would have a moderate to major, adverse effect to the development of salable minerals.

Impacts from Lands and Realty Management

This alternative would create exclusion areas on 25,235.5 acres, or 5.9 percent, of public land, and avoidance areas on an additional 86,510 acres, or 20.2 percent, of public land. Overall mineral development would be impacted at a moderate, adverse level. In excluded areas, there

would be no development of leasable and salable minerals. In avoidance areas, restrictions and mitigation measures would severely hamper the development of both leasable and salable minerals. Currently, there are 8,696 acres withdrawn from minerals entry under this alternative, with no additional acres proposed for withdrawal. The total withdrawn lands under this alternative are 8,696, or 2.0 percent of BLM-administered lands.

Leasable minerals: Approximately 111,745.5 acres, or 26.1 percent of the 428,425 acres of public surface, of public minerals lands would be removed from leasable mineral development under this alternative. Management action would have a moderate to major, adverse effect to leasable minerals.

Locatable minerals: For all areas except for Wilderness Characteristic areas, a plan of operation is required for development of locatable minerals pursuant to the regulation. Operators would be asked to comply with stipulations and mitigations measures. The impact to locatable minerals would be minor to moderate and adverse for the Decision Area for the life of the RMP.

Salable minerals: Approximately 111,745.5 acres, or 26.1 percent of the 428,425 acres of public surface, of public minerals lands would be restricted from salable mineral development under this alternative. This management action would have a major, adverse effect to leasable minerals.

Impacts from ACECs

Under this alternative the nine proposed ACECs (46,241 acres) would remain open to mineral entry. However, these areas would be included within exclusion and avoidance areas. The Flagstaff Hill portion of Oregon Trial ACEC would remain closed to entry. This closure would include both the presently withdrawn 507 acres and an additional 10 acres of presently opened public lands. The overall impact would be moderate and adverse to all minerals.

Leasable minerals: Not issuing ROWs and NSO would severely hamper the development of these minerals. This would be a major, adverse impact to the development of leasable minerals within the Decision Area for the life of the RMP

Locatable minerals: A plan of operation would be required for any exploration or development within the boundary of an ACEC, per regulation. Operators would be asked to comply with mitigation and stipulations. The overall effect to locatable minerals would be adverse on a minor scale within the Decision Area.

Salable minerals: ACECs are created for unique or special values. Rarely can the value for which the ACEC is created and the development of minerals materials co-exist. Since salable mineral actions are discretionary, this would, for all intents and purposes, remove these areas from the development of these minerals. This would be a major, adverse impact to the development of salable minerals within the Decision Area for the life of the RMP.

Alternative 3

Impacts Same as under the No Action Alternative

- Impacts from Cultural Resources
- Impacts from Fire and Fuels
- Impacts from WSAs

Impacts Same as under Alternative 1

- Water Resources
- Soil Resources
- Invasive Plants and Noxious Weeds
- Fisheries
- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from Lands with Wilderness Characteristics
- Impacts from WSRs

Impacts from Visual Resources

All of the alternatives would manage VRM Classes I and II to minimize disturbance of visual resources. Surface use stipulations under these two classes would redesign, cancel, or mitigate mineral activities.

Leasable minerals: Class I VRM designations of 18,543 acres would remove these resources from development. Class II VRM designations of 247,375 acres would place such restrictive mitigation measures that costs would increase, which could be prohibitive to development of some leasable commodities. This management action would be a moderate to major, adverse impact to development of leasable minerals in these areas.

Locatable minerals: Operators of locatable mineral projects would be asked to comply with mitigation measures.

Salable minerals: VRM designations would adversely affect the development of these minerals by imposing cost prohibitive measures in areas designated as VRM I and II, which covers approximately 265,918 acres of land, or 62.1 percent of BLM administered lands. This action would have a major, adverse effect to the development of salable minerals.

Impacts from Lands and Realty

This alternative would create exclusion areas on 40,249.9 acres, or 9.4 percent, of public land, and avoidance areas on an additional 84,875 acres, or 19.8 percent, of public land. Overall

mineral development would be impacted at a moderate, adverse level. In excluded areas, there would be no development of leasable and salable minerals. In avoidance areas, restrictions and mitigation measures would severely hamper the development of both leasable and salable minerals. Currently there are 8,696 acres withdrawn from minerals entry, and under this alternative an additional 20,370.7 acres are proposed for withdrawal, which would bring the total to 29,066.7 acres, or 6.8 percent of the BLM administered lands.

Leasable minerals: Not issuing or restricting ROWs and NSO would severely hamper the development of these minerals. This would result in a moderate to major, adverse impact to the development of leasable minerals within the Planning Area for the life of the RMP.

Locatable minerals: Approximately 29,066.7 acres (6.8 percent) of the public lands where BLM administers both the surface and the minerals estates are proposed for withdrawal from mining laws. For all areas (except for Wilderness Characteristic areas), a plan of operation is required for development of locatable minerals pursuant to the regulation. Operators would be asked to comply with stipulations and mitigations measures. The impact to locatable minerals would be minor to moderate and adverse for the Planning Area for the life of the plan.

Salable minerals: Approximately 125,124.9 acres, or 29.2 percent of the 428,425 acres of public surface, of public minerals lands would be removed from salable mineral development under this alternative. This management action would have a major adverse effect to leasable minerals.

Impacts from ACECs

Under this alternative, there would 12 areas managed as ACECs (10 existing and 2 newly proposed). This alternative also proposes to pursue withdrawals on an additional 3,570 acres, or 0.8 percent of presently open public lands. In addition to this, all ACECs would have a NSO stipulation for leasable minerals, essentially removing these lands from development for leasable mineral resources.

Leasable minerals: Not issuing ROWs and NSO would severely hamper the development of these minerals. Having NSO on 49,579 acres, or 11.6 percent of the BLM administered surface estate, would have a moderate, adverse effect to leasable minerals.

Locatable minerals: The removal of 3,570 acres, or 0.8 percent of presently open public lands, would have a minor adverse effect to locatable minerals. However these are the lands that presently have locatable mineral interests and it is likely that the interests would remain at this level through the life of the RMP. The effects would range from minor to moderate and adverse.

Salable minerals: ACECs are created for unique or special values. Rarely can the value for which the ACEC is created and the development of minerals materials co-exist. Since salable mineral actions are discretionary, this would, for all intents and purposes, remove these areas from the development of these minerals. This would have a major, adverse impact to the development of salable minerals within the Decision Area for the life of the RMP.

*Alternative 4*Impacts Same as under the No Action Alternative

- Fire and Fuels
- Impacts from Cultural Resources
- Impacts from WSAs
- Impacts from Public Safety

Impacts Same as under Alternative 1

- Water Resources
- Soil Resources
- Invasive Plants and Noxious Weeds
- Fisheries
- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from Lands with Wilderness Characteristics
- Impacts from WSRs
- Impacts from ACECs

Impacts from Visual Resources

All of the alternatives would manage the VRM Classes I and II to minimize disturbance of visual resources. Surface use stipulations under these two classes would redesign, cancel, or mitigate mineral activities.

Leasable minerals: Class I VRM designations of 18,543 acres would remove, or at least place cost prohibitive stipulations, on these resources from development. Class II VRM designations 247,495 acres would place such restrictive mitigation measures that costs would increase, which could be prohibitive to development of some leasable commodities. This management action would be a moderate to major, adverse impact to development of leasable minerals in these areas.

Locatable minerals: Operators of locatable mineral projects would be asked to comply with mitigation measures.

Salable minerals: VRM designations of class I and II would adversely affect the development of these commodities minerals by imposing cost prohibitive measures in the areas designated as such, which is approximately 266,038 acres of land, or 62.1 percent of the BLM-administered lands. This action would have a major, adverse effect to the development of salable minerals.

Impacts from Lands and Realty Management

This alternative would create exclusion areas on 75,157.2 acres, or 17.6 percent, of public land, and avoidance areas on an additional 84,994.3 acres, or 19.8 percent, of public land. Overall mineral development would be impacted at a moderate, adverse level. In excluded areas, there would be no development of leasable and salable minerals. In avoidance areas, restrictions and mitigation measures would severely hamper the development of both leasable and salable minerals. Currently, there are 8,696 acres withdrawn from minerals entry. Under this alternative, an additional 95,645 acres are proposed for withdrawal, which would bring the total to 104,341 acres, or 24.4 percent of the BLM-administered lands.

Leasable minerals: Not issuing ROWs and imposing NSO stipulations would severely hamper the development of these minerals. Restricting access to 37.4 percent of the public surface estate by not issuing permits and ROWs would be a major, adverse impact to the development of leasable minerals within the Decision Area for the life of the RMP.

Locatable minerals: Approximately 95,645 additional acres (22.3 percent) of the public lands where BLM administers both the surface and the minerals estates are proposed for withdrawal from the mining laws under this alternative. For all areas with special designations (except for Wilderness Characteristic areas), a plan of operation is required for development of locatable minerals pursuant to the regulations. Operators would be asked to comply with stipulations and mitigations measures. The impact to locatable minerals would be minor to moderate and adverse for the Planning Area for the life of the plan.

Salable minerals: Restricting access to 37.4 percent of the public surface and minerals estate by not issuing or restricting permits and ROWs would have a moderate to major, adverse effect on the development of salable minerals with in the Planning Area.

*Alternative 5*Impacts Same as under the No Action Alternative

- Fire and Fuels Management
- Impacts from Cultural Resources

Impacts Same as under Alternative 1

- Impacts from Water Resources
- Impacts from Soil Resources
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Fisheries
- Impacts from Wildlife
- Impacts from Special Status Species

- Impacts from Lands with Wilderness Characteristics
- Impacts from WSAs
- Impacts from Public Safety
- Impacts from ACECs

Impacts Same as Alternative 4

- Impacts from Visual Resources

Impacts from Lands and Realty

This alternative would create exclusion areas on 103,318.3 acres, or 24.1 percent, of public land, and avoidance areas on an additional 55,812.2 acres, or 13.0 percent, of public land. Overall mineral development would be impacted at a moderately adverse level. In excluded areas, there would be no development of leasable and salable minerals. In avoidance areas, restrictions and mitigation measures would severely hamper the development of both leasable and salable minerals. Currently, there are 8,696 acres withdrawn from minerals entry and, under this alternative, an additional 95,645 acres are proposed for withdrawal, which would bring the total to 104,341.0 acres, or 24.4 percent of the BLM administered lands.

Leasable minerals: Restricting access to 37.1 percent of the public surface estate by not issuing permits and ROWs would have a moderate to major, adverse effect on the development of leasable minerals with in the Planning Area.

Locatable minerals: Under the mining laws (locatable minerals), claimants have the right to reasonable access to their claims. It is expected that the effects of exclusion areas would be minor to moderate for locatable.

Salable minerals: Restricting access to 37.1 percent of the public surface and mineral estate by not issuing or restricting permits and ROWs would have a moderate to major, adverse effect on the development of salable minerals with in the Planning Area

c. Cumulative Impacts

All Alternatives

Eastern Oregon has experienced extensive mineral activities over the last 150 years, and it would be likely that small to mid-scale mining would continue on public lands. This is dependent upon the price of the commodities and the expense of complying with environmental regulations. If the price of the commodity increases, so does interest in mining the commodity. This assumption has been played out with the recently renewed interest in gold mining. Based upon the current knowledge of the geologic environment and the past activity levels in the Baker Resource Area, the demand for both saleable and leasable minerals would remain static or increase slightly during the life of the RMP.

Access to public lands will likely decrease in the future based upon proposed travel plans. However, development of recreational opportunities may result in increased access, which would increase access to minerals.

Alternative 2 would have the least effect on minerals, followed by the No Action Alternative, Alternative 3, Alternative 1, Alternative 4, and, finally, Alternative 5, based upon acres of land available for mineral entry. This is also the order for impacts from NSO restrictions under leasable and saleable minerals.

When looked at individually, management actions other than VRM, Lands & Realty, and ACECs, would only have a minor to moderately adverse effects on all minerals. The Lands & Realty, ACECs, and VRM management actions under all alternatives would remove, or at least severely hamper, the development of leasable and salable minerals. By restricting 13.0 percent of public lands on the low end under Alternative 5, and 21.3 percent on the high end under Alternative 1, the avoidance areas would have negligible effects on locatable minerals. Exclusion Areas would remove between 5.9 percent (Alternative 2) on the low end and 24.1 percent (Alternative 5) on the high end. Exclusion areas would have minor to moderate, adverse effects on the locatable minerals. Salable minerals development would not be allowed within exclusion areas. VRM classifications of I and II could severely restrict the development of leasable and salable minerals. For locatable minerals there would be a minor, adverse effect.

The area of analysis for cumulative impacts on leasable minerals is the Baker FO boundary, plus an additional 50 miles beyond this border. Based on a history of minimal interest in oil and gas exploration and the limited development potential of the Planning Area, activity over the next 15 to 20 years is likely to be minor. Oil and gas activity would probably consist of issuing some competitive and over-the-counter leases, a few geophysical surveys, and perhaps the drilling of one to three exploratory wells. Total surface disturbance caused by exploratory drilling over the life of the RMP would be about 13 acres. Any oil and gas deposits that may be found would probably be too small for economical development. However, if development were to occur, the total surface disturbance caused by exploration and development would probably affect about 200 acres or less. Geothermal energy resources are known to exist in this region but are essentially undeveloped, particularly in the Planning Area. With recent interest in geothermal energy expressed by some governmental and private entities, geothermal exploration may be initiated in the Planning Area, which could lead to development of this resource. However, the small and relatively isolated population of the area means direct use of geothermal energy from public lands would be unlikely. Based on the history of geothermal exploration in eastern Oregon, a projected increase in demand of about 0 to 5 notices of intent for surface geophysical surveys and 1 to 3 notices of intent to drill between 1 and 10 temperature gradient holes would be expected to be filed under any alternative during the life of this RMP. Total surface disturbance as a result of geophysical surveys would be expected to be about 0.5 acre over the life of the RMP. About 5.5 acres of surface disturbance would be expected for temperature gradient holes. It is estimated that less than 5 exploratory wells would be drilled under any alternative during the life of the RMP, resulting in a total of 25 acres for surface disturbance over

the life of this RMP. A geothermal generating facility (if constructed) would have a total surface disturbance of 20 to 75 acres. The most favorable conditions for exploration and development of mineral resources would be those with the fewest restrictions possible under any of the alternatives. Individuals and companies involved in exploration and development face numerous environmental obligations in order to comply with standard leasing requirements and terms of sale. Additional measures for mitigation of disturbance to lands and other resources would result in further impacts and additional costs for mineral exploration and development. No surface occupancy stipulations would be most appropriate for small areas where directional drilling is feasible (up to 0.5 miles). Within the area of evaluation for cumulative effects, there are several owners, including the BLM, that require lands be closed to mineral operations. These include wilderness areas, WSAs, WSRs, and other SMAs. Although the cumulative area of lands closed to mineral leasing and mineral entry would be fairly substantial, impacts would be minor to moderate due to low expectation of industry proposals for exploration and development. Potential development of energy and mineral resources on lands outside BLM jurisdiction would not likely be significantly affected by any of the alternatives, and only small cumulative impacts would be anticipated. For example, as lands are closed or restricted, mineral development operators would move to those areas that are open, such as the National Forests and private lands. However, unlike many resources, minerals deposits are where they are and development can only occur where these deposits are located.

Based on a history of interests in locatable mineral exploration and the development potential of the Planning Area, activity over the next 15 to 20 years is likely to be small and sporadic. Locatable mineral activity would probably consist of maintaining current claims, a number of new claims would be staked, and some non-invasive geophysical, geochemical, and relatively small scale mining. Total surface disturbance caused by exploratory type work (notice level or less) over the life of the RMP would be less than 1,000 acres. Any locatable mineral deposits that may be found would probably be either small or of such grade as to make development and profitability questionable. However, if development were to occur, the total surface disturbance caused by exploration and development would probably affect about 2,000 acres.

The most favorable conditions for exploration and development of mineral resources would be those with the fewest restrictions possible. Individuals and companies involved in exploration and development face numerous environmental obligations in order to comply with NEPA, and other state and federal regulations. Additional measures for mitigation of disturbance to lands and other resources would result in further impacts and additional costs for mineral exploration and development. Within the area evaluated for cumulative effects, congressional designation of WSAs as “wilderness” would close additional acres. Although the cumulative area of lands closed to locatable mineral development is fairly substantial, impacts would be minor to moderate due to low to moderate expectations of industry proposals for exploration and development.

Based on the history of salable mineral development within the Planning Area, the next 15 to 20 years are likely to see either no or a slight increase in salable mineral development. As

development continues on private lands in and around the Decision Area boundary, nearby sources of salable minerals would continue to produce these mineral commodities. This would help to alleviate pressure on public land sources. Salable mineral activities would most likely consist of maintaining existing roadways and sales to individuals and companies. Most new sales to individuals would be small and involve less than 10 acres. The most favorable conditions for exploration and development of saleable mineral resources would be those with the fewest restrictions possible under any of the alternatives. Individuals and companies involved in development face numerous environmental obligations in order to comply with NEPA, and other state and federal regulations. Additional measures for mitigation of disturbance to lands and other resources would result in further impacts and additional costs for saleable mineral development under any of the alternatives.

5. RECREATION

Effects on recreation management from the proposed alternatives would result in a wide range of possible outcomes. Surface-disturbing activities, such as wildland fire management and mineral development, would have both short-term and long-term effects on recreational users if areas and activities are restricted or excluded until surface-disturbing activities conclude, or if such activities change the landscape character or recreation opportunities available, such as by altering the visual aesthetics of the landscape. Special designations such as wilderness areas, WSAs, ACECs (RNAs, outstanding natural areas [ONAs]), and WSR segments or suitable river segments, as well as identified lands with wilderness characteristics, can all dramatically affect recreation management positively or negatively, depending on the opportunities available or allowable in these areas. Typically, special designation areas protect important historical, cultural, and scenic values, which encourage recreational uses that have less impact, such as non-motorized or non-mechanized access and more-primitive backcountry experiences. Recreational users who prefer motorized travel as an activity or who require motorized travel as a means to access areas that attract them can often be affected if previously accessible areas become inaccessible to motorized travel through special designations. Maintaining and possibly increasing SRMA areas would be intended to protect the recreational resources and experiences of specific areas within the Decision Area, and to encourage appropriate forms of recreational activities that preserve these areas for those recreational uses. Extensive Recreation Management Areas are also managed for recreational pursuits and opportunities. However, the direction of these areas is focused on the exploration component of recreational uses, as they provide no specific recreational direction or improvements. These areas allow the general public to seek their own individual opportunities for activities such as camping, hunting, fishing, or hiking, with little management influence. Both land- and water-based activities would remain the focus in both the SRMA and ERMA designations, and management actions would be pursued appropriately in order to accommodate the most popular activities within the Decision Area, which include, but are not limited to, boating (motorized and non-motorized), camping, hiking, fishing, hunting, driving for pleasure/exploration, and sightseeing.

a. Indicators, Methods, and Assumptions***Recreation Indicators***

All indicators are based on public comment or surveys, monitoring reports, resource condition, and the best professional judgment.

- **Quality of Recreational Opportunities.** The quality of recreational opportunities indicates variations in the duration and frequency of recreation, and recreationists' level of satisfaction with individual recreational pursuits. Visual quality of the landscape is often a primary component of the level of satisfaction, as is the frequency and intensity of conflict between various recreationists their specific form of recreation. For instance, conflicts sometimes arise between motorized use and hikers. Users expect to have an enjoyable time and avoid conflict with other users.
- **Quantity of Recreational Opportunities.** The amount of areas available, the levels and forms of access, as well as the variety of recreational opportunities, is an indicator of how management impacts recreation.
- **User Displacement.** Displaced users indicate short- or long-term loss of recreation opportunities. Generally, displaced users indicate loss of choices in location for particular kinds of uses. For example, these can be the result of special area designations, energy site developments, or access method restrictions.

Recreation Methods and Assumptions

To evaluate the potential impact on recreation management from each alternative, information was gathered from recreation specialists and the public during the planning process. Impacts were identified using best professional judgment and were assessed according to the following assumptions:

- Recreational visits would continue to increase and monitoring would need to be implemented to maintain visitor satisfaction;
- The incidence of resource damage and conflicts among recreational uses involved in mechanized, motorized, and non-motorized activities would increase as the population and use of public lands increased;
- Anticipated increases in population and public land use would focus on non-motorized and motorized use, as well as fishing, hiking, biking, boating, camping, wildlife/bird observations, picnicking/day use, and hunting;
- To a lesser or greater degree depending on the specific alternative, the action alternatives would help meet future demand for regional motorized, non-motorized, land and water-based recreation activities, and would improve the quality of most visitor experiences on public lands in the Decision Area.
- Most recreators enjoy natural landscapes that are protected to lesser or greater degrees, depending on VRM objectives.

- Visitor demand for all types of recreation opportunities will increase annually, with most visitor demand being for water-based and motorized recreation opportunities.
- Motorized use in WSAs is limited to designated routes, or may be closed to motorized use to protect wilderness values. Motorized and mechanized use is closed in the Wilderness.
- Motorized use of public lands would be limited in the action alternatives to “designated” roads, primitive roads, routes, and trails unless otherwise noted. The exception to this is the Open classification of the Virtue Flat OHV Play Area.
- Not all public land can be legally accessed by the public (i.e., federal lands that are land locked by private lands) due to lack of any legal public access road, routes, or easement.
- Roads, primitive roads, routes and trails that contain only “administrative” easements across private lands are not considered as legal public access.
- To the greatest extent possible, BLM would utilize existing roads, primitive roads, routes and trails as an interim management, and would only build new accesses if necessary to provide for a variety of motorized and non-motorized designated routes or trail loops as part of the TMP (to be completed 5 years following the ROD).
- Sound from motorized recreational activities may be heard at different levels by other recreation visitors, adjacent landowners, permittees, mining claimants, other users, or wildlife. Sound from motorized activities is variable and dependent upon, but not limited to type of use, riding or driving style of the user, time of day, wind velocity and direction, topographic and vegetative screening, elevation, aspect, temperature, and other factors.

Magnitude of Impacts to Recreation

The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:* The impact is at the lowest level of detection; there would be no measurable change to recreation activities or recreational opportunities.
- Minor:* The impact is slight but detectable; but the change would be small and, if measurable, would be localized or mitigated to reduce the affect on recreation activities or recreational opportunities.
- Moderate:* The impact is readily apparent; there would be a measurable change that could result in a small, localized, but permanent change to recreation activities or recreational opportunities.
- Major:* The impact is severe; there would be a highly noticeable, long-term, or permanent measurable change to recreation activities or recreational opportunities.

b. Impacts to Recreation

Impacts to Recreation in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources

- Vegetative Communities
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Special Status Species
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Facilities
- Forestry and Woodland Products
- Livestock Grazing
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- WSRs
- Wilderness and WSAs

Impacts Common to All Alternatives

Impacts from Minerals

Minerals management could affect recreation everywhere except areas which have been withdrawn from mineral entry. Minerals management could create both beneficial and adverse impacts on recreational opportunities and experiences as mineral exploration and development occurs. In order to provide for health and safety of recreationists, minerals management activities involving heavy equipment, new roads construction, well pads, and other facilities, would directly affect recreational users in the short term by placing restrictions on areas where activities occur. Long-term adverse impacts could occur as surface-disturbances detrimentally impact scenic quality and the natural landscape of an area, which would subsequently reduce the quality of recreational experiences in that area. However, beneficial impacts could occur as mineral developments, such as roads or primitive roads, allow for motorized access into areas that previously had none. Overall impacts from minerals management would be minor beneficial, but minor to moderate, adverse impacts would be expected, depending on the size and scope of the operations. Both the beneficial and adverse impacts would be long-term at the local level. Negligible impacts would occur for the Decision Area.

No Action Alternative

Impacts from Water Resources

As water quality increases, as well as associated improvements to riparian condition throughout the Decision Area, a direct increase in the quality of recreational experiences would be expected

to occur. Since most recreational activities are associated with water, resource improvements would add to the quality of recreational pursuits in general. In addition, improved water resources also improve the visual aesthetics of landscapes, which also improve recreational experiences. However, to meet the objectives under this resource, some recreational activities could be modified, relocated, or banned, such as motorized uses that impact riparian areas. These management actions could displace specific types of recreational uses as objectives for water resources are attempted. Impacts would be beneficial and adverse, minor in magnitude and long-term at local levels. Decision Area impacts would be long term, could range from negligible to minor, and be both beneficial and adverse.

Impacts from Vegetative Communities

Actions and activities for Vegetative community management under this alternative would continue to be implemented across the Decision Area as they have been in the past. Where management activities improve vegetative communities, and where those areas overlap with areas having high recreational values such as SRMAs, the improvements would directly benefit the quality of recreational experiences. Activities such as hunting, hiking, and camping can directly and indirectly benefit from the management of vegetative communities. Impacts would be beneficial, short- and long-term, but minor in magnitude at the local levels. Decision Area impacts would be negligible.

Impacts from Invasive Plants and Noxious Weeds

By implementing control efforts to reduce the populations of invasive plants and noxious weeds, direct and indirect improvements to recreational activities would occur. Noxious and invasive species directly and adversely impact the quality of recreational experiences and can often displace recreational activities (i.e. campers avoid areas infested with thistles). In addition, management actions are often taken to prevent the spread of these species by restricting types of recreational activities. The impacts for the management of noxious and invasive species would be beneficial, long-term, and minor to moderate in magnitude at the local levels. Decision Area impacts would also be beneficial, long-term, but minor in magnitude.

Impacts from Fisheries

Management actions directed at maintaining or enhancing both anadromous and resident fisheries, as well as riparian health, directly and indirectly benefits recreational pursuits associated with fishing. These include activities such as hiking, camping, and boating (motorized and non-motorized), as well as other land- and water-based recreational activities. The activities associated with these fisheries would occur at greater frequencies and for longer durations as the quality of recreational fishing improves. Impacts would be beneficial, long-term, and minor to moderate in magnitude at the local levels. Decision Area impacts would be similar, except that the magnitude of the impacts would range from negligible to minor.

Impacts from Wildlife

Maintaining or enhancing the habitat of big game species, as well as the continued re-introduction of high demand wildlife species, such as bighorn and turkeys, would increase success ratios of hunters, as well as improving the general hunting opportunities of the public lands. Indirect benefits in the form of wildlife viewing, camping, hiking, and photography would also occur. Impacts would be beneficial, long-term, and minor to moderate at the local levels. Decision Area impacts would be negligible to minor, beneficial, and long-term.

Impacts from Special Status Species

In order to protect special status species where recreational activities are deemed to threaten those species, recreational activities may be restricted, limited, or closed. The displacement of recreational activities would reduce the quality and quantity of recreational opportunities in those areas. However, some benefits would occur for the segment of recreational users who appreciate and seek out special status species for research/study, or interpretation and education endeavors. Overall, the impacts from special status species management would be negligible to minor and beneficial, but also cause minor adverse impacts, with both being long-term at the local level. Decision Area impacts would be negligible.

Impacts from Fire and Fuels Management

Short-term road, route or trail closures would displace hunters and motorized uses to other areas and could affect recreation opportunities and experiences by changing the landscape and scenic attractiveness of areas. Providing prompt rehabilitation from fire management activities would minimize long-term loss of motorized or non-motorized access, as well as reducing the displacement time for other recreational pursuits. Game hunting opportunities and associated recreational activities, such as camping and hiking, are expected to increase with new vegetation forage attracting game animals to burned locations. Beneficial impacts are seen as environments are changed through the reintroduction of fire, which improves the condition and health of vegetation and reduces hazardous fuel levels where uncontrolled fires can drastically change landscapes and recreational opportunities. Appropriate fire and fuels management can have both a direct and indirect benefit on recreation as higher quality/quantities of recreation opportunities change or increase as the landscape changes and improves as a result of fire. Impacts would be adverse in the short term, beneficial in the long term, and range from minor to moderate in magnitude at the local levels. Decision Area impacts would be expected to be negligible.

Impacts from Visual Resources

Previously identified VRI levels and VRM guidelines would be maintained as in the past and would influence the forms of recreational opportunities associated with visual aesthetics and scenic quality. These visual characteristics of public lands contribute to providing quality experiences in an aesthetically pleasing landscape to all types of recreation visitors. Visual integrity and quality is directly associated with almost all forms of recreational pursuits, from

hunting and hiking to camping or driving for pleasure. However, the current VRM classifications do not offer sufficient protection to the scenic quality of the BLM lands from today's desired projects and activities. Not all BLM lands were given appropriate VRM designations to compensate for increased uses and the increased sensitivity of users and communities, nor did they account for technological advances and demands for developments such as wind energy projects, which have a size and scope that can drastically alter the characteristics of landscapes. Impacts under this alternative would be adverse, minor to moderate in magnitude and long-term at the local and regional levels. Decision Area impacts would also be adverse, but would be negligible to minor in magnitude.

Impacts from Lands with Wilderness Characteristics

Under this alternative, no lands with wilderness characteristics would be managed to protect their wilderness characteristics. Without specific protection, the two areas identified as lands with wilderness characteristics would only be protected by the overlapping ACEC designations or the indirect mitigations required as a result of these lands being contiguous with WSA boundaries. However, specifically protecting for wilderness characteristics, the identified lands with wilderness characteristics would remain at risk for activities that could adversely impact the naturalness and recreational opportunities that these areas possess. These activities could reduce or eliminate the primitive character of the area, thereby displacing primitive recreational pursuits. Impacts would be adverse, minor to major in magnitude, and long-term at the local level. Decision Area impacts would be negligible.

Impacts from Facilities

Under the No Action Alternative, there would be few restrictions for the development of facilities that directly influence the quality of recreation in SRMAs and ERMAs where appropriate to meet user satisfaction. Campgrounds, toilets, administration sites, and staging areas are examples of facilities that would benefit the overall recreational experience of public land users. Impacts under this alternative would be beneficial, long-term, and moderate in magnitude at local levels. Decision Area impacts would also be beneficial and long-term, but would be negligible to minor in magnitude.

Impacts from Forestry and Woodland Products

The extraction of forestry and woodland products can impact recreational experiences in the short term as recreation activities are restricted from the area or displaced during forestry operations. Long-term impacts result as products are extracted which changes the expected opportunities of an area, change the landscape character, and affect visual qualities, all of which can lead to the displacement of recreationists. Overall, impacts would be adverse, short- and long term, and would be minor in magnitude at the local levels. Decision Area impacts would be negligible.

Impacts from Livestock Grazing

Livestock grazing management would continue as in the past and result in the continued presence of cattle, horses, sheep, and rangeland facilities on public lands. Recreational experiences in grazing areas, as well as other high use recreational areas, could experience short-term impacts when recreation activities and grazing practices occur on the same public lands. Range improvements, such as adjusting fence locations, could create short-term impacts on recreation by interfering with recreational use patterns or by temporarily displacing recreation activities. Overall, impacts would be short-term, minor, and adverse at local levels. Impacts to the Decision Area would be negligible.

Impacts from Recreation

Management actions would continue to support an array of recreational opportunities, including boating, camping, motorized/non-motorized use, hiking, hunting, and fishing. The Baker FO would continue to manage WSAs, WSRs, and special areas as appropriate, along with developed/semi-developed/undeveloped recreation sites scattered across the Decision Area in order to provide for these recreational opportunities. SRMA and ERMA directions would continue as in the past and would, in general, benefit recreation by providing a variety of opportunities and by ensuring that water- and land-based recreational opportunities continue to exist in both designated and undesignated areas. However, the direction under the current Baker RMP (BLM 1989) for recreational management does not appropriately address current use levels, technological advances in equipment such as ATVs, snowmobiles, and mountain bikes, nor account for shifting use patterns. This would result in direct and indirect detrimental impacts over time as the recreational activities, especially in high concentration areas, in conjunction with growing use numbers, would begin to degrade resource values and the quality, quantity, and satisfaction of recreational experiences. Impacts would be minor and beneficial, but moderately detrimental in magnitude, and both short- and long-term in nature at the local levels. Decision Area impacts would also predominately be adverse, but negligible to minor in magnitude.

Impacts from Travel and Transportation

Existing travel management under this alternative would not change motorized use designations, thereby removing the opportunity to improve the quality, quantity and diversity of motorized, non-motorized or mechanized recreational experiences. Over time, this continued "open" use would begin to impact other resource values which would then create situations where recreation use would be limited or closed to mitigate resource damage. In addition, the expected population increase and related use of public lands of the Decision Area would magnify these impacts, particularly with motorized recreation being one of the primary and fastest growing recreational pursuits. Impacts from the management of recreation under this alternative would be beneficial in the short term as most of the Decision Area is available for cross country activities, but would be adverse in the long term as the quality of the public lands and satisfaction of all of its users is decreased. Impacts for both would be moderate and local. Decision Area impacts would be adverse, but minor.

Impacts from Lands and Realty Management/ROW

With few restrictions on the development of projects and facilities, the allowable ROWs, large scale energy developments, and associated ancillary structures can all have an adverse impact on the recreational use and quality of experiences on public lands. These forms of developments can often displace recreational uses or change the recreational opportunities of an area. For example, camping areas that were predominately primitive are suddenly located under a power transmission line ROW. Depending on the size and scope of developments, recreational experiences in quality or quantity are affected proportionately. (i.e., small projects produce small impacts, and large projects produce large impacts). However, benefits from the management of land and realty under the No Action Alternative can be seen in the form of land acquisitions, land exchanges, easements, or facility developments, such as campgrounds and cell towers. All of the actions or activities directly affect recreation experiences and opportunities in a positive way. Overall impacts from the management of Lands and Realty under the No Action Alternative would be both adverse and beneficial, of a moderate magnitude, and long-term at the local levels. Decision Area impacts would also be both adverse and beneficial, but only minor in magnitude.

Impacts from ACEC

Current ACEC designations would continue with few, if any, restrictions on the recreational activities occurring within those areas. Impacts to recreation from the management of ACECs would be negligible.

Impacts from WSRs

The designated WSRs within the Decision Area would be managed to preserve their outstandingly remarkable values under their respective River Management Plans. This would preserve the land and water based recreational activities in these areas. Until “suitability” is determined for all “eligible” river segments, the river segments determined to be “eligible” under this alternative would be given interim management to ensure the protection of the OHVs identified for each river. However, interim protection for the lower Grande Ronde River and the Snake River would be in accordance with the directions identified in the Wallowa/Grande Ronde River Final River Management Plan. This plan provides an appropriate amount of protection while still providing for recreational opportunities and would, therefore, not impact the recreation resource of the Decision Area. Additionally, the Joseph Creek segment that is eligible would be managed under the management directions for the Joseph Creek ACEC/ONA, which would also protect the OHVs while still allowing recreational pursuits consistent with that management direction. Recreational use of WSRs is high for the Decision Area, and these systems provide opportunities for almost all recreational pursuits from geocaching to driving for pleasure. Offering the protection of the WSR Act maintains and enhances the recreational values of these important resources. Impacts would be moderately beneficial and long-term at the local level for designated and eligible river segments. Decision Area impacts would be negligible.

Impacts from Wilderness and WSAs

Within the Decision Area, 14,538 acres would continue to be managed as WSAs, thereby benefiting recreational users seeking backcountry and primitive recreational experiences. Interim Management policies for WSAs would continue to maintain or enhance WSA values and would continue to adequately protect the valuable resources contained within these designations, which attract recreational use. Impacts would be beneficial, minor in magnitude, and long-term at local levels. Decision Area impacts would be negligible.

*Alternative 1*Impacts Same as Under the No Action Alternative

- Impacts from Livestock Grazing
- Impacts from Wilderness and WSAs

Impacts from Water Resources

The actions taken under this alternative may restrict or prohibit motorized and non-motorized use in certain watersheds and riparian areas. These restrictions would be due to water quality, soil erosion, sedimentation, and aquatic concerns associated with recreational use. Road and trail construction and maintenance for motorized and non-motorized uses may be limited, or may require additional mitigations to meet aquatic and riparian BMPs. Motorized and non-motorized recreation use may be temporarily, seasonally, or permanently affected if road or trail limitations and closures designed to protect water resources restrict access to popular recreation areas. Re-routing and redesigning roads and trails to prevent impacts to water resources would not affect recreational users directly, but would indirectly benefit recreational opportunities by keeping access available for recreational pursuits. However, if route closures were imposed without creating alternative routes, recreational activities associated with these routes would be displaced, resulting in lost recreational opportunities in these situations. Some beneficial impacts would be seen as recreational activities, such as fishing, hiking, hunting, scenic quality, and wildlife viewing, would increase in quantity, quality, and duration as water quality, and stream and riparian health is improved. Overall, impacts would be both beneficial and adverse, minor in magnitude, and long-term at the local levels. Decision Area impacts would be negligible.

Impacts from Vegetative Communities

Management actions under this alternative to improve the health and diversity of vegetative communities (i.e., riparian, grassland and forest stands) would increase the types and quality of recreational pursuits across the Decision Area. Vegetative management actions help to improve environmental conditions and directly benefit a variety of recreational pursuits, such as camping, hunting, hiking, or enjoying the visual quality of landscapes. Impacts would be beneficial, long-term, and negligible to minor in magnitude at the local level. Decision Area impacts would be negligible.

Impacts from Invasive Plants and Noxious Weeds

Implementing prevention and rehabilitation actions to combat the spread of invasive plant and noxious weed populations would directly benefit recreation activities when treated areas overlap areas of desired recreational use. In the short-term, recreation could be affected in areas having high concentrations of invasive or noxious species. In these areas, mitigations such as boat and vehicle wash racks, as well as recreational activity restrictions, could be implemented to prevent the spread of invasive species until eradication efforts prove successful. However, long-term beneficial impacts on recreation include improved natural communities, increased scenic quality, and enhanced recreational experiences in activities associated with hunting, hiking, and camping. Overall impacts would be beneficial, long-term, and minor in magnitude at the local levels. Decision Area impacts would also be negligible.

Impacts from Fisheries

By focusing management actions on both native and non-native fish species and their habitats, the recreational pursuit of these species would be enhanced over the long term. This management direction, in conjunction with the improvement of riparian and aquatic conditions, would have beneficial impacts on recreational fishing, as well as associated recreational activities like camping, hiking, and boating, particularly in SRMAs associated with the Snake and Grande Ronde Rivers. Impacts would be beneficial, minor to moderate, and long-term at the local and regional levels. Decision Area impacts would be beneficial, but minor.

Impacts from Wildlife

Wildlife and special status wildlife management could adversely impact recreation by increasing restrictions on certain activities, such as motorized use, and within certain areas, such as critical big game habitats. If recreation activities, current or proposed, are determined to create direct or indirect impacts to a species, the activity would be modified, restricted, or eliminated. These actions would displace users accustomed to the recreational opportunities of those areas. Indirect benefits from this alternative would occur from the improvement of species habitats, which, in turn, would be expected to improve recreational activities associated with wildlife, such as viewing, camping, hunting, and photography. Overall, impacts would be adverse and beneficial, minor, and short- or long-term at the local levels. Negligible impacts would occur at the Decision Area level.

Impacts from Special Status Species

Measures to protect special status plants would adversely impact recreational activities where those activities are found to negatively affect special status species. In these situations, recreational uses would be modified, restricted, or excluded to avoid further adverse impacts to species or their habitats. Overall, impacts to recreation would be short and long term, negligible to minor in magnitude, and adverse at local levels. Negligible impacts would occur at the Decision Area level.

Impacts from Fire and Fuels Management

The management of fire and fuels for the Decision Area would have short-term impacts to recreational activities as those activities are displaced to allow for human health and safety during fire activities and operations. These impacts would be isolated and short-term in nature as current BMPs for fire and fuels management are implemented. Although landscape the changes in some cases, the impacts from fire events are more readily accepted by recreationists as a component of the natural environment, which reduces the adverse impacts of these events. Overall, the impacts from the management of fire and fuels under this alternative would be adverse, short-term, and minor to moderate at local levels. Decision Area impacts would be negligible.

Impacts from Visual Resources

Lands within the Decision Area would be managed at VRM classification levels that are consistent with the VRI determination levels (see Map 2.1). VRM guidelines are expected to enhance recreation opportunities and contribute to providing quality experiences in a landscape by retaining existing visual quality. This alternative would fully and adequately support that direction by applying the appropriate VRM classifications to meet recreational use expectations for landscape quality. The management actions under this alternative would help to ensure landscapes that are aesthetically pleasing to all types of recreational visitors. Overall, impacts would be beneficial, long-term, and moderate in magnitude at the local levels. Beneficial, minor to moderate impacts would occur to the Decision Area in the long term.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, the identified lands with wilderness characteristics would be protected to ensure the retention of their characteristic values. In addition to protecting the resource values of the lands with wilderness characteristics, an increase in the acres of public lands that provide for primitive outdoor recreation opportunities and settings would occur. Although some additional restrictions for recreational uses of these areas could be implemented to augment the naturalness or recreational opportunities, the overall management direction for identified lands with wilderness characteristics is to benefit appropriate forms of recreational uses. Impacts would be beneficial, minor and long term at the local levels. Negligible impacts would occur to the Decision Area.

Impacts from Facilities

Focusing on the needs of the recreating public, management actions for the development of facilities within developed, semi-developed, and dispersed areas would improve the quality and quantity of the recreational experiences. Under this alternative, facility developments designed to benefit recreational activities and opportunities would be focused in SRMAs and a few high use ERMAs. Indirectly, these improvements would be designed to meet growing recreational demands and would also contribute to an increase in quality and quantity of recreational

experiences. Impacts would be beneficial, minor and long-term at local levels. Negligible impacts would occur at Decision Area levels.

Impacts from Forestry and Woodland Products

Recreational activities could be restricted or excluded from areas during forest management activities. Timber hauling activities and other treatments could reduce all recreation opportunities by causing short-term road, route or trail closures. These treatments may also impact visitor experiences and remoteness by altering the characteristics of the landscape in the short term. In the long term, proactive forest and woodland management would increase the quality of recreation experiences in aesthetically pleasing, diverse vegetative landscapes that are less vulnerable to catastrophic wildfires. Direct control measures to address forest health would occur in areas of high recreation value, directly affecting recreation activities by improving forest health in known areas of high recreational use. Effects on recreation activities include enhanced opportunities for camping, hiking, hunting, wildlife viewing, scenic driving, and sightseeing. Overall, impacts would be beneficial, short- and long-term, but minor in magnitude at the local levels. Negligible impacts would occur at Decision Area levels.

Impacts from Recreation

Management actions would be similar as those described under the No Action Alternative, except for the change in areas classified as SRMAs and ERMAs. In these areas, the identified emphasis for recreational activities and management would adequately address use increases and patterns, as well as maintaining or enhancing the quality and quantity of recreational experiences. The BLM would continue to manage public lands for a variety of recreational activities within all settings of dispersed opportunities in ERMAs, and provide recreational users in SRMA areas with amenities such as toilets, picnic tables, boat ramps, bulletin boards, directional signing, and parking areas. Impacts would be beneficial, long-term, and minor to moderate in magnitude at the local levels. Decision Area impacts would be expected to be negligible.

Impacts from Travel and Transportation

A wide range of quality non-motorized and motorized recreation opportunities would result from the designation of Open, Limited, and Closed areas for travel management under this alternative. This interim route network would provide more diversity and benefits for all users of roads/trails in the Decision Area. The effects of clearly defining the motorized use areas with a minimal amount of Open designations would be expected to affect many motorized recreation visitors who have historically traveled cross-country for back-country exploration, big game hunters, and individuals just trying to challenge their vehicles. Closures of roads would be associated with identified special designation areas where closures are required to protect resource values of those areas. Additional motorized closures would occur on lands that have no legal “public” access. Limiting motorized recreational use to specific areas or to existing or designated roads/trails would be expected to enhance opportunities for other recreational activities that are

not directly associated with motorized uses such as hiking, backpacking, and camping. These designations, while protecting the availability of motorized uses and access, would also ensure the protection of other resource values, which provide for a higher quality recreation experience for all recreation activities in the long term. The Virtue Flat OHV Play Area would remain open to motorized uses, which allows for cross country experiences on the 4918 acres of this area. Impacts would be adverse and beneficial, minor in magnitude, and long-term at the local levels. Decision Area impacts would be negligible to minor, long-term, and beneficial.

Impacts from Lands and Realty Management/ROW

Generally, land tenure adjustments that block up public lands and improve public access would enhance land- and water-based recreation for all activities. In addition, ROWs which consider increasing public access would directly benefit recreational opportunities if these roads/routes provide access to areas that previously had no access. Land acquisitions, land exchanges, or easements, regardless of the purpose, could directly improve recreation activities, the quality of those activities, as well as the quantity available. Larger blocks of public land generally contribute to higher quality, quantity, and variety of recreational opportunities. Nearly all of the public lands proposed for exchange or sale are scattered, isolated parcels that do not have public access. Therefore, the removal of these tracts of land would not directly decrease the acreage of available public lands for recreation activities. However, utilizing these isolated parcels to block up public lands that have legal access would directly benefit recreational opportunities within the Decision Area. Realty actions, other than acquisitions, would exclude or avoid special areas such as ACECs, RNAs, WSRs, wilderness, and WSAs, which would have a positive effect on recreational users seeking primitive or natural settings and experiences. Mineral withdrawals that emphasize the protection of high-value resources would directly affect recreation opportunities by preserving these resources, which would improve landscape health and scenic quality. In addition, the pursuit of public access to parcels of BLM lands that are currently inaccessible would add significantly to the recreational possibilities of public land use. Overall, impacts would be beneficial, minor to moderate in magnitude and long-term at the local levels. Minor impacts to the Decision Area would occur, would be beneficial and long-term.

Impacts from ACECs

Impacts from the management of ACECs would be similar to the No Action Alternative, except for the number of areas designated and the changes in acreages that occur under this alternative. Generally, measures to protect valuable and sensitive resources within ACEC/RNA/ONA designations would create both beneficial and adverse impacts on recreational uses within the Decision Area. Visitors to ACECs could take part in wildlife viewing, hunting, motorized/non-motorized use, fishing, sightseeing, hiking, and camping, unless specifically restricted within a given area. Conflicts between motorized and non-motorized recreation users would be minimized in these areas, improving the quality of recreation experience for all users. Motorized recreation use in ACECs would either be limited to designated routes or closed (seasonally or permanently) for resource protection. Non-motorized recreation opportunities would continue to be more available in ACEC areas, unless impacts from these forms of recreational pursuits began

to degrade ACEC values, at which time the activities would be restricted or removed. Overall, impacts from the management of ACECs are beneficial and adverse, negligible to minor in magnitude, and long-term at the local levels. There would be negligible impacts at the Decision Area level.

Impacts from WSRs

Impacts occurring under this alternative would be the same as those identified under the No Action Alternative, except that the Joseph Creek “suitable” river segment would be recommended for inclusion into the National WSR System (NWSRS) as a “wild” river component. This would provide adequate protection of the Outstandingly Remarkable Scenic and Geologic values of this river segment while protecting opportunities for primitive non-motorized recreational experiences. Those rivers not determined “suitable” would still fall under the protection of existing plans, high VRM Classifications (Class I and II), as well as the knowledge of the significance of the resources to the Decision Area. This knowledge will help to guide the management of these areas into the future. Impacts would be beneficial, moderate in magnitude, and long-term at the local levels. Decision Area impacts would be negligible.

Alternative 2

Impacts Same as the No Action Alternative

- Impacts from Fire and Fuels
- Impacts from WSRs
- Impacts from Wilderness and WSAs

Impacts Same as Alternative 1

- Impacts from Water Resources.
- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife

Impacts from Fisheries

By focusing on both native and non-native fish species and their habitats, and by specifically emphasizing sport fisheries, the quality and quantity of recreational fishing opportunities would be enhanced, as would the public satisfaction of those who fish for them. Although the commercial value associated with the sport fishery would be the direction that management actions focus on, indirect beneficial impacts would occur to other recreational activities that are associated with fishing or water based recreation (i.e., camping, boating). This emphasis would be most noted in the improvements associated with SRMAs that contain fishing opportunities, such as the Snake and Grande Ronde River systems. Impacts from the management of fish

species in the Decision Area would be beneficial, minor to moderate, and long term at the local level. Decision Area impacts would be expected to be minor, beneficial and long-term.

Impacts from Special Status Species

Impacts would be the same as described under Alternative 1, except that opportunities to enhance recreational activities would be pursued where those activities do not threaten or impact the species identified in those areas. Most special status species in the Decision Area are addressed in under the ACEC sections for specific details and restrictions to recreational activities). There would be a negligible difference in the impacts between Alternative 1 and Alternative 2.

Impacts from Visual Resources

This alternative would provide the least amount of protection to public lands by minimizing the higher classifications of lands in VRM Class I and II and emphasizing Class III and Class IV areas. This VRM management direction is predominantly lower than the identified VRI inventory assessments for these lands. This reduction of classifications to below inventoried level would allow more long- and short-term impacts to occur in most all of the VRM zones to meet the objectives of this alternative. These activities would temporarily, or in some cases permanently, affect scenic quality and quantity, and well as overall landscape views, which are a primary component for recreational pursuits, and thereby add to the quality and satisfaction of recreational experiences. Under this alternative, those visual components that attract recreational use, directly or indirectly, would not be protected from activities that could degrade this resource, and, in some cases, the visual resource of the Decision Area could be lost entirely. Impacts would be adverse, long-term, and range from minor to major in magnitude at the local levels. Decision Area impacts would be long-term, adverse, and range from negligible to moderate.

Impacts from Lands with Wilderness Characteristics

Under this alternative, none of the identified lands with wilderness characteristics (see Map 2.6) would be offered additional protection. Impacts to these areas would be the same as the No Action Alternative. Indirect benefits would be seen in the form of other recreational activities that would be allowed to continue in the identified lands with wilderness characteristics that might otherwise have been restricted or eliminated had the areas been fully protected. However, these impacts would be negligible for the recreation resources.

Impacts from Facilities

Impacts would be the same as described under Alternative 1, except facility developments would be more focused on commercial recreation instead of recreation as a whole. Although the actions of this alternative would directly benefit those recreationists who seek commercial uses and opportunities such as tours, hunting/fishing guides, and guided boating adventures, it would

only indirectly benefit other recreationists as the types of facilities provided (i.e. boat ramps, toilets, etc...) would be utilized for non-commercial recreational pursuits.

Impacts from Forestry and Woodland Products

Impacts would be similar to those described under Alternative 1, except that the emphasis on commodity production could create additional adverse impacts to recreational quality, quantity, and the satisfaction of users as product extraction became more common and occurred over larger areas. Increased recreational use displacement would occur as a result of activities, adversely impacting the quality, quantity, and satisfaction of users for most recreational pursuits both directly (i.e., by road, route, and area closures) and indirectly (i.e., by scenic landscape changes, or the loss of favorite hunting timber pockets or camping areas). Impacts would be adverse, moderate and long-term at local levels, but would be negligible for the Decision Area.

Impacts from Livestock Grazing

Emphasizing commodity production would allow for more livestock grazing on public lands, which would impact the quality and satisfaction of some recreational experiences. As habitats and vegetation components change, landscape views alter over time, and wildlife patterns adjust, the various forms of recreational uses of those lands would shift, be displaced, or even eliminated in worst case scenarios. Although recreational use would continue to occur, the quality of those experiences would not be expected to be maintained over the long term. Impacts would be adverse, both short- and long-term, and minor to moderate at local levels. Decision Area impacts would also be adverse and long-term, but would be minor in magnitude.

Impacts from Recreation

Impacts would be the similar to those described under Alternative 1, except that the emphasis on commodity/commercial based recreation could direct developments or needs away from areas that are used by the general public despite demands. SRMAs would get the primary focus to meet the objectives of this alternative since these areas more readily support commercial recreational activities and associated recreational amenities. ERMAs would receive little to no specific recreational improvements unless commercial activities would warrant such improvements. Although commercialized recreation supports only a very small amount of the recreational uses in the Decision Area, the focus on commercial recreation would create some indirect benefits as facilities developed for commercial recreation are also utilized by general public land recreationists. Overall, impacts would be moderately adverse, but minor, beneficial, and long-term at the local level. Decision Area impacts would be negligible.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that more acres would be classified as Open and Limited.

Impacts from Lands and Realty Management/ROW

Focusing on the needs for commodity production under this alternative would in both the long- and short-term would adversely impact the recreational resources of the Decision Area. ROWs as well as the reduction in exclusion/avoidance area would allow for more project or facility developments to occur across the landscape. Depending on the size and scope of proposed projects, this could adversely impact the recreational quality, quantity and satisfaction of recreationists. Large scale projects, such as energy developments and their ancillary structures, can impact large amounts of public lands both physically and visually. Impacts from these projects have a direct correlation on the quality of recreational experiences to numerous recreational pursuits (e.g., camping, hiking, hunting, and driving for pleasure). Impacts under this alternative would be adverse, minor to major in magnitude, and long-term at local levels. Decision Area impacts would also be adverse, long-term, and would be negligible to moderate in magnitude.

Impacts from ACECs

Impacts would be the same as described under the No Action Alternative, except for the number of ACECs designated and the subsequent acreage associated with those designations. Impact differences between the No Action Alternative and Alternative 2 would be negligible.

Impacts from WSRs

Although no impacts to recreation would occur under this alternative to the designated rivers of the Decision Area, detrimental impacts could occur as a result of the “suitable” Joseph Creek segment not be recommended for inclusion into the NWSRS and, therefore, not be granted any additional legislative protection. The outstandingly remarkable values for Joseph Creek would only be protected under the adjacent protection of ACECs and high VRM classification (Class I), as well as the knowledge of the sensitive nature of this resource. However, not including this segment into the NWSRS does not offer the additional protection of that designation. Although it is reasonable and foreseeable that the OHVs identified for this river segment would be protected by the other management directions for this area, it would not be as strict as the “wild” designation that the NWSRS would provide. Recreational use in this area could be reduced by not providing the added emphasis that the designation into the NWSRS provides. Since WSRs are an “attraction” to recreationists, the lack of this designation could direct users to other areas thereby missing the opportunity to enjoy this unique and outstanding area. Offering the protection of the NWSRS Act maintains and enhances the recreational values and opportunities of these important resources. Impacts to recreation could be adverse, long-term, but negligible to minor for the “suitable” Joseph Creek segment at the local levels and negligible for the designated rivers. Decision Area impacts would be negligible.

*Alternative 3*Impacts Same as the No Action Alternative

- Impacts from Fire and Fuels Management

Impacts Same as Alternative 1

- Impacts from Water Resources
- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from Forestry and Woodland Products
- Impacts from WSRs

Impacts Same as Alternative 2

- Impacts from Fisheries

Impacts from VRM

Impacts would be similar to those described under Alternative 1, except that a slight decrease in VRM II and slight increase in VRM III acres deviate from the VRI inventory. This is primarily due to the Class II designation placed on all lands visible from the National Historic Trail Interpretive Center. This added buffer would ensure that the recreational and interpretive experience from this facility would not be impacted by management actions on BLM lands. In addition, the emphasis on recreation under this alternative would directly and indirectly benefit recreational experiences, since most recreationists, regardless of individual pursuits, are attracted to high scenic quality. However, impact differences between Alternative 1 and Alternative 3 are negligible.

Impacts from Lands with Wilderness Characteristics

Under this alternative, the identified lands with wilderness characteristics would receive added protection to maintain and enhance their natural and recreational values. Emphasizing the recreational component of lands with wilderness characteristics would ensure the quality, quantity, and variety of the predominately primitive recreational experiences. Although projects within these areas would be allowed as long as they do not degrade the characteristic values, this alternative still offers the greatest overall recreational benefit. Impacts under this alternative would be beneficial, long-term, and minor to moderate in magnitude at the local level. Negligible impacts would occur at the Decision Area level.

Impacts from Facilities

Impacts would be the same as described under Alternative 1, except that the facility developments or improvements under this alternative are designed to specifically enhance the overall recreational attractiveness of facilities and the adjoining public lands. This would directly and indirectly affect all recreational activities by increasing the quality, quantity, and varieties of recreation for the growing number of recreationists who utilize public lands. Facilities would be developed to meet public need and demand in both the SRMAs and the high-use ERMAs. Amenities developed within high-use recreation areas often contribute to the overall satisfaction of recreation experiences. Impacts under this alternative would be beneficial, long-term, and moderate in magnitude at the local levels, with Decision Area impacts being negligible.

Impacts from Livestock Grazing

Impacts would be the same as described under Alternative 1, except that grazing would not be authorized during a portion of big game hunting season (Sept. 1 through Nov. 30). This would have a direct impact on those recreationists using public lands during this time period by eliminating the conflicts that sometimes occur between recreation (hunting) and grazing practices. Although this alternative directly affects a very specific user group, indirect and beneficial impacts would be noticed by other recreationists who utilized public lands during this timeframe (i.e., camping, hiking). However, overall impacts would not be expected to be different from those identified under Alternative 1.

Impacts from Recreation Management

This alternative would create the most benefit for recreational opportunities in quality, quantity, and variety for the Decision Area as a whole. Emphasizing recreation for the current and future management of the BLM lands would maintain, enhance, and ensure that all recreational activities and pursuits have the highest possible level of public user satisfaction. Although restrictions to recreational activities would still occur in order to provide for other resource needs or concerns, the improvement or protection of these resources would have a direct benefit on the quality, quantity, and satisfaction provided by various forms of recreation. SRMAs would receive specific attention to provide for these high-quality experiences, while ERMAs would continue to provide for more dispersed and primitive recreational pursuits. Impacts would be beneficial, minor to major in magnitude, and both short-or long-term in nature at local levels. Decision Area impacts would also be beneficial, but would be negligible to minor.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that more acreage would be Limited and Open than under Alternative 1

Impacts from Lands and Realty Management

Impacts would be the same as described under Alternative 1, except for the changes in acreages of exclusion/avoidance areas and the correlating effect those designations have on recreational experiences. Overall, the differences between the recreational impacts of Alternative 1 and Alternative 3 would be negligible.

Impacts from ACECs

Impacts would be the same as described under Alternative 1 except for the number and acreage of designated areas. No additional impacts to recreation would be expected from the management of ACECs under this alternative, or those impacts would be negligible from those described under alternative 1.

Impacts from Wilderness and WSAs

Under this Alternative WSAs would be designated as SRMAs that would focus efforts to maximize recreational use through adjacent land developments and activities, while protecting the values of the WSAs. Impacts would be similar to the No Action Alternative, except that additional beneficial impacts would result from the improved access to and amenities provided on lands adjacent to WSA boundaries. These additional benefits would be long-term and minor at the local levels. Negligible impacts would be seen at the Decision Area level.

*Alternative 4*Impacts Same as the No Action Alternative

- Impacts from Wilderness and WSAs

Impacts Same as Alternative 1

- Impacts from Water Resources.
- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife
- Impacts from Facilities
- Impacts from WSRs

Impacts from Fisheries

Direct benefits for the recreational pursuit of native species would occur only under the objectives of this alternative. However, by focusing management action only on native fish species, the recreational importance and experiences provided by non-native species would be overlooked. Non-native species within the Decision Area, primarily on the Snake River

Reservoirs and the Grande Ronde River, as well as on numerous lakes, attract a large amount of recreational use. These non-native species provide a high quality and quantity of user experience, as well as user satisfaction in pursuit of non-native species. Indirect benefits would occur from the improvement of riparian and aquatic resources for native species as these improvements directly benefit non-native species existing in the same waterways. This improvement of habitat would benefit recreational fishing opportunities and associated uses of the Decision Area. Overall impacts would be minorly beneficial, moderately adverse, and long-term at local levels. Decision Area impacts would be expected to be negligible to minor.

Impacts from Special Status Species

Impacts would be the similar to those described under Alternative 1, but with some additional restrictions for the protection of special status species that could impact recreational pursuits. For instance, under this alternative, all BLM managed roads, primitive roads, and trails (approximately 165 miles) within the sage-grouse habitat surrounding the Virtue Flat OHV Play Area would be closed to motorized uses. Impacts under this alternative would be, overall, adverse, minor in magnitude and long-term at local levels. Decision Area impacts would be negligible.

Impacts from Fire and Fuels Management

Impacts would be the same as described under the No Action Alternative with the exception of implementing current BMPs for fire and fuels management. Although “light on the land” practices could lead to increased intensity or frequency of fire events, the impacts to recreational activities and experiences would not be expected to differ from Alternative 1.

Impacts from Visual Resources

Impacts would be similar to those described under Alternative 1, except that an increase in VRM designations to higher classifications would deviate above the VRI levels. In addition, the emphasis for “light on the land” projects and activities would ensure the protection and integrity of the scenic landscapes of public lands in the Decision Area. However, impact differences between Alternative 1 and Alternative 4 would be slightly different as the beneficial impacts under Alternative 4 would change from minor to major as more protection is offered to visual integrity from projects that can drastically change landscapes. Decision Area impacts would be beneficial, long-term, and minor to moderate in range.

Impacts from Lands with Wilderness Characteristics

Impacts would be the same as described under Alternative 1, where the identified lands with wilderness characteristics would receive added protection in order to ensure the natural and recreational values of these areas in a predominantly primitive state of nature.

Impacts from Forestry and Woodland Products

For recreation, impacts would be the same as described under Alternative 1. Although impacts would adjust as the number of acres treated changed, the overall differences in impact between Alternative 1 and Alternative 4 would be negligible.

Impacts from Livestock Grazing

Impacts would be the similar as those as described under Alternative 1, except that additional restrictions or reductions on grazing could occur to meet other resource objectives. Although this could benefit recreation, if these restrictions improve resource conditions that attract recreational visitation, the overall impacts are not expected to be different than identified under alternative 1.

Impacts from Recreation

Beneficial impacts would be similar to those described under Alternative 1; however, under this alternative, the management emphasis towards low-impact recreational activities would have direct impacts on all recreational pursuits that are associated with motorized or high-impact mechanized activities. With larger portions of the population utilizing motorized access in the pursuit of their recreational activities, this alternative would reduce, displace, restrict, or eliminate these opportunities. The protection of other resources (visual, fishing, and hunting, for example) would be enhanced as a result of this type of recreational focus due to its emphasis on non-motorized and mechanized forms of recreation. Over time, these activities would contribute to higher quality scenic values that recreationists are drawn to. However, adverse impacts would occur as a result of these management actions by restricting, reducing, or eliminating the opportunities of a large percentage of the recreating population from the enjoyment of exploring public lands by motorized means. There is also an ageing population that still utilizes public lands who, as a result of the technological developments in personal motorized equipment, would experience adverse impacts directly since many of them are either physically incapable or desire to explore using only non-motorized/mechanized activities. Overall, impacts would be both beneficial and adverse, at a moderate magnitude, and would be short- and long-term at local levels. Decision Area impacts would be minor to moderate.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1 except that fewer acres would be available as Open or Limited with more acres designated as Closed.

Impacts from Lands and Realty

Impacts would be the similar to those described under Alternative 1, except that additional exclusion and avoidance areas would help to ensure that projects or activities on Decision Area

lands would be less likely to impact recreational resources. However, the difference in impacts between Alternative 1 and Alternative 4 would be negligible.

Impacts from ACEC

Impacts would be the same as described under Alternative 1, except for the number and acreage of areas designated. Although ACECs are directed solely to protect the resources for which the areas receive the designation, impacts to recreation is usually minor. Most impacts to recreation are a result of motorized restrictions or closures. However, the overall impact differences between Alternative 1 and both Alternatives 5 and 5a are negligible.

Alternative 5 & 5a

Impacts Same as the No Action Alternative

- Impacts from Wilderness and WSAs

Impacts Same as Alternative 1

- Impacts from Water Resources.
- Impacts from Vegetative Communities
- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Wildlife
- Impacts from Special Status Species
- Impacts from Lands with Wilderness Characteristics
- Impacts from Facilities
- Impacts from Travel and Transportation
- Impacts from WSRs

Impacts Same as Alternative 4

- Impacts from Fisheries
- Impacts from Fire and Fuels
- Impacts from Visual Resources
- Impacts from Forestry and Woodland Products
- Impacts from Lands and Realty

Impacts from Livestock Grazing

Impacts would be the same as described under Alternative 1, except that removing livestock grazing under Alternative 5a would have the same impact as identified under Alternative 3. However, under this alternative grazing would be removed from public lands throughout the year and would, therefore, benefit all recreational pursuits that conflict with grazing.

Impacts from Recreation

Impacts would be the same as described under Alternative 4. Although actions that remove grazing from public lands would reduce conflicts in certain areas between recreationists and livestock, these changes in impacts would be negligible between Alternatives 4 and 5a.

Impacts from ACECs

Impacts would be the same as described under Alternative 4, except for the number and acreage of areas designated. Although ACECs are directed solely to protect the resources for which the areas receive the designation, impacts to recreation is usually minor. Most impacts to recreation are a result of motorized restrictions or closures. However, the overall impact differences between Alternative 4 and both Alternatives 5 and 5a are negligible.

c. Cumulative Impacts

No Action Alternative

Recreational activities in the past have been predominately managed on an “as needed” basis, only when demands and user pressure dictated. Recreation site developments were minimal to moderate based on user trends and resource concerns. Few restrictions to recreational uses were imposed in the Decision Area under the current Baker RMP (BLM 1989) with those restrictions existing primarily on the designated WSRs, ACECs, WSAs, and some motorized limitations to roads and trails in specific areas, such as Lookout Mountain and the Burnt River Canyon areas. These past management actions have been adequate at providing and protecting a variety of recreational activities and opportunities over the decades throughout the Decision Area. Past actions of management, which range from a restriction on adversely impacting activities, to the protection of sensitive resources, have strived to ensure that public lands remained available for appropriate recreational pursuits in a natural to semi-natural setting. Although restrictions are not always readily accepted by recreationists, especially if those restrictions directly impacted a personal activity, the need for the restrictions was based on resource concerns that, if left unmitigated, would create situations where restrictions would need to be upgraded to full closures.

Present recreation levels of use, as well as the ever-increasing forms of technological equipment, continue to take the increasing populations of Oregon and adjacent states further into areas of public lands that were once only reachable by the hardiest of recreationists. These technological improvements range from personal motorized equipment, multi-gear mountain bikes, and even snowshoes whose lightweight construction and low cost increases the numbers of recreationists who participate in outdoor winter activities. Historical recreational uses and population increases currently influence the recreational use patterns and impacts resulting from these uses of public lands. Recreational activities in the Decision Area range from primitive forms of recreation, such as dispersed camping, hunting and, hiking, to fully developed campgrounds that service motorized travelers or those who desire more “at home” conveniences. Although the Decision Areas support of these more “developed” campgrounds is limited to one campground

along the Brownlee Reservoir, within the Planning Area more developed sites do exist. Idaho Power, Oregon State Parks, USFS, as well as some counties, all have fully developed campsites that currently meet the needs and demands of the public who seek these forms of recreational experiences. Current trends in population growth will continue to add pressure to all lands of the Decision Area, both water- and land-based. These increasing use patterns can often have a significant impact to the quality, quantity, and satisfaction of recreational experiences of visitors to BLM lands. As use increases, it can be assumed that the experiences of recreationists to these areas could diminish, especially if management direction cannot appropriately mitigate impacts to resources that attract this use. Current technological improvements in the form of personal land- and water-based motorized and non-motorized equipment constitute the most significant impacts in the Decision Area. Ever-advancing technology creates equipment that can easily traverse the topography, and both natural and man-made physical barriers in order to access lands or waters in search of solitude, exploration, or just to get away from it all. Impacts left by these activities would be, for the most part, short-term. However, the steep terrain and dry high desert conditions of the Decision Area often support more long-term impacts from simple activities such as motorized uses, mechanized uses, and pedestrian trailing that creates soil disturbances. In some cases, these impacts can become permanent.

Future impacts would continue to result from the historical and projected population increases for the Decision Area. The projected population growth of the Decision Area over the next 20 years would continue to increase demand for primitive, developed, and disperse recreation areas. Although past use levels and management actions addressing the needs or concerns of recreation activities have been effective at providing high quality and quantity experiences while minimizing the effects or impacts on public land resources, it is not expected that similar management direction would continue to be effective. Added recreation pressure, along with the ever increasing forms of recreation, methods, and demands, will continue to impact public lands. Management actions would, therefore, need to intensify to compensate for demands, as well as to mitigate any negative impacts that would degrade the recreation opportunities of the Decision Area,

Alternative 1

Under Alternative 1, the management of the recreation resources would maintain or enhance those recreational values, while offsetting direct and indirect impacts by utilizing management actions that mitigate resource uses and conflicts. The management actions of other resources, such as ACEC management, VRM classifications, travel and transportation management, and land tenure adjustments, as well as other resource restrictions, would cumulatively maintain, enhance, or protect the qualities associated with the recreational opportunities found throughout the Decision Area. The cumulative impacts to recreation under this alternative would be beneficial, long-term, and moderate in magnitude at local levels. Impacts to the Decision Area as a whole would be minor, but beneficial.

Alternative 2

Under Alternative 2, the cumulative impacts to recreation would be similar to those identified under Alternative 1, except that emphasis would be placed on commercial or commodity developments. With an emphasis on commercial or commodity based recreation, the overall satisfaction of recreational pursuits would not be met. Population increases that impact the use of the Decision Area lands could not be adequately accommodated by commercial uses alone. This alternative would have the most detrimental impact, directly, indirectly, and cumulatively, to the recreational pursuits of the public. In addition, the management of other resources such as VRM II classification, travel and transportation, and lands & realty, and mineral developments, would continue to create degradations to the landscape values that attract recreational use. The cumulative adverse impacts from the management direction under this alternative would reduce the characteristic qualities and quantities of recreational opportunities on BLM lands. The satisfaction of recreationists visiting the Decision Area could not be maintained over the long term under this alternative. The overall impacts would be adverse, long-term, and minor to major in magnitude at the local level, with adverse impacts being minor to moderate across the Decision Area.

Alternative 3

Direct, indirect, and cumulative impacts under Alternative 3 would be similar to those described under Alternative 1, with the exception of the focus on recreational activities. Focusing on recreation throughout the Decision Area for all resources would improve or enhance the qualities, quantities, and satisfaction of recreationists. The varied recreational opportunities, from primitive to developed, within the Decision Area under this alternative would attract additional visitor use as recreation opportunities increase, or, in some cases, were developed. This alternative would be the most beneficial for recreation resources directly, indirectly and cumulatively. Adverse cumulative impacts could occur as a result of the increased attractiveness of the Decision Area lands, as recreational use would put added pressure onto other resources such as sensitive species, wildlife, and fisheries, which if not properly managed would begin to directly and indirectly affect the quality of experiences. Overall cumulative impacts would be beneficial, local, and range from minor to moderate in magnitude for the long term. Decision Area impacts would be minor.

Alternative 4

Under Alternative 4, the direct, indirect, and cumulative impacts would be similar to those identified under Alternative 1. However, the added emphasis under this alternative for all resources (ACEC, travel and transportation, land tenure, VRM, etc.), including recreation to reduce the amount of impacts to the lands of the Decision Area, would adversely impact the demands and recreational pursuits of the public, both directly and indirectly. Cumulative impacts would be adverse and beneficial in both the short and long term, as lands within the Decision Area are managed to prevent impacts to the BLM managed lands. These adverse cumulative impacts would be noticed as a large portion of the visitors to public lands are

restricted either by their preferred method of access being reduced (i.e., motorized access), or their physical condition and age prevent them from utilizing public lands by means other than motorized (i.e., horseback, mountain bikes, hiking, snowshoeing). With more and more of the aging population of the country becoming outdoor-oriented as a result of these technological advances, the cumulative impacts on the satisfaction of users would be drastically reduced if they were no longer able to enjoy public lands for hunting, hiking, or driving for pleasure. However, the direction of this “light on the land” management approach would, over time, increase the naturalness, visual integrity of landscapes, as well as the general experiences of solitude for those recreationists who do access public lands by means other than motorized. Regardless, the overall adverse impacts to recreation far outweigh the beneficial impacts. Therefore, the direct, indirect, and cumulative impacts resulting from the management of this alternative would be adverse, long-term, and minor to moderate in magnitude at both the local and Decision Area levels.

Alternative 5 & 5a

The direct, indirect and cumulative impacts under this Alternative would be the same as identified under Alternative 4. The no grazing aspect of this alternative has little impact on the recreational uses of the Decision Area, and is, therefore, considered to be negligible.

6. TRAVEL AND TRANSPORTATION

Travel and transportation management affects the number and types of users able to reach and travel on public lands by a variety of methods, although the focus is on motorized access. Changes in the interim route network are needed or required to address various resource protection needs and public demands. Measures that are implemented to protect natural resources, such as wildlife, water, soil, and cultural resources, as well as certain types of recreational experiences, could result in seasonal or permanent route restrictions, re-routing roads/trails, vehicle limitations, or road closures. Permitted activities on public lands, such as those related to forestry, ROWs, energy developments, and minerals, could expand the route network. General management guidelines for travel and transportation (i.e., roads and trails) are to provide access and recreational opportunities, while minimizing resource impacts and user conflicts.

a. Indicators, Methods, and Assumptions

Travel and Transportation Indicators

The indicators used to measure impacts to travel and transportation and their management include accessibility to road systems, public satisfaction, and conformance with 43 CFR 8342.1. The latter directs minimization criteria based on damage to other resources such as soil, watershed, vegetation, air, wilderness characteristics, wildlife and their habitats, endangered or threatened species and their habitats, use conflicts between motorized and non motorized, noise, and the preservation of designated wilderness or primitive areas.

Travel and Transportation Methods and Assumptions

Potential impacts on travel and transportation from each alternative are based on BLM's professional knowledge and observations of the Decision Area and its resources, as well as from information gathered from the public during the planning process. Impacts were identified using best professional judgment and knowledge of past and present uses and their associated impacts, and were assessed according to the following assumptions:

- The demand for recreational use and visits would increase over the life of the RMP.
- "Motorized" is defined as any form of equipment utilized for personal or group travel that is propelled by other than human powered methods (e.g., internal combustion engines and electric motors).
- "Mechanized" is defined as any form of equipment utilized for personal or group travel that is propelled solely by human-power (e.g., bicycles and sailboards).
- The existing roads, primitive roads, and trails of the Decision Area at the time this RMP is completed are considered to be the interim route network.
- Road maintenance of this interim route network is classified by maintenance intensities consisting of "removal," "primitive," "low," "medium," and "high."
- The incidence of resource damage and conflicts among recreationists involved in mechanized, motorized, and non-motorized activities would increase proportionally with increasing use of public lands.
- The interim route network would be managed and maintained as a multi-use, shared system until the completion of a TMP, which the BLM intends to complete within five years of the ROD, for this RMP.
- Within WSAs, motorized use is either designated as closed or limited to designated "cherry stem" routes to protect the characteristics of the area. Federal law prohibits motorized and mechanized travel within designated wilderness.
- Not all public lands can be legally accessed by the public (e.g., federal lands that are land-locked by private land owners without any public access routes or easements). Road mileage calculations do not always differentiate between mileages with or without legal public access, since all of these areas are not identified. For this RMP, "private" access to public lands is not considered to be "public" access.
- Roads, primitive roads, or trails on administrative easements across private lands are closed to public access.
- Any additional road closures, openings, or re-routing proposals not currently identified in this Draft RMP/EIS would undergo additional environmental review with associated public input during the TMP process or during future plan amendments.
- Best management practices would be utilized for construction, rehabilitation, maintenance and general management of the travel and transportation.
- Among the public, there are widely divergent ideas of what should constitute public access on public lands.
- The focus of this section is on motorized and mechanized travel.

- The BLM will authorize administrative uses of roads and trails where and when it determines such uses are required.

Magnitude of Impacts to Travel and Transportation

The intensities of beneficial and adverse impacts are described, where possible, using the following guidance:

- Negligible:* The impact is at the lower level of detection; there would be no measurable change to public access satisfaction, administrative needs, road/trail condition, or resource protection.
- Minor:* The impact is slight but detectable; there would be a small but measurable impact that would be localized and would not affect public access satisfaction, administrative needs, road/trail condition, and/or resource protection.
- Moderate:* The impact is readily apparent; there would be a measurable, short-term or long-term change to overall public access satisfaction, administrative needs, road/trail condition, and/or resource protection.
- Major:* The impact is severe; there would be a highly noticeable, long-term, or permanent measurable change to overall public access satisfaction, administrative needs, road/trail condition, and/or resource protection.
- Short term:* Impacts are between 1 and 5 years in duration.
- Long term:* Impacts are more than 5 years in duration.

b. Impacts to Travel and Transportation

Impacts to travel and transportation in the Decision Area would result from actions proposed under the following resource management programs:

- Climate
- Wildlife
- Special Status Species
- Visual Resources
- Lands with Wilderness Characteristics
- Facilities
- Forestry and Woodland Products
- Minerals
- Recreation
- Travel and Transportation
- Lands and Realty
- ACECs

No Action Alternative

Impacts from Climate

Management of climate change and GHG emissions under the No Action Alternative would not affect motorized travel and transportation opportunities.

Impacts from Wildlife

No wildlife management actions proposed under the No Action Alternative would impact travel and transportation within the Decision Area.

Impacts from Special Status Species

Modifying the interim route network (e.g., through temporary closures, seasonal access restrictions, re-routing, or permanent closure) to protect special status species would have adverse, short- and long-term, minor impacts to travel and transportation at the local level, and be negligible Decision Area wide.

Impacts from Visual Resources

Visual resource management guidelines are expected to maintain the characteristics of landscapes by retaining existing visual quality and helping to ensure landscapes are aesthetically pleasing to all types of visitors. Existing road networks currently do not violate the VRM classifications identified under the current Baker RMP (BLM 1989). The current VRM classifications and associated objectives would be followed in the construction, maintenance, or modification of interim route networks. However, depending on public and administrative needs, VRM classifications can impact where, how, or if new roads/trails could be developed or maintained to improve the interim route network. In cases of the higher visual quality classes (VRM Classes I and II), interim route networks could be restricted or excluded unless mitigations can be placed that would reduce or eliminate impacts to visual integrity. Moderate beneficial impacts for recreationists who prefer motorized road access would occur under this alternative due to the fact that the majority of the BLM managed lands are classified as VRM III and IV (63 percent), which allows for more impacts to be noticeable (see Map 2.1). These classifications would allow for more developments and maintenance actions to occur that would improve the interim route network if required to meet public/administrative satisfaction or resource protection. The resultant degraded visual quality would have adverse, long-term, minor impacts on travel experiences through public lands at the local level. On the other hand, reduced restrictions of motorized uses from the lower VRM classifications would result in beneficial, long-term, minor impacts at the local level. The magnitude of Decision Area-wide impacts, both adverse and beneficial, would be negligible to minor.

Impacts from Lands with Wilderness Characteristics

Because the recently identified lands with wilderness characteristics would not receive any added protection under the No Action Alternative, there would be no further restrictions placed on the uses of the interim route network expected, and thus no impacts.

Impacts from Facilities

Placing few restrictions under the No Action Alternative on the development of facilities in conjunction with increasing use and demand, would allow for the expansion or construction of additional components to the interim route network, such as trailheads, parking areas, toilets, and information kiosks. Increased development of facilities on public lands, including roads/trails to access such facilities, would lead to a proportional increase in the interim route network. The additional roads and trails would directly improve administrative and public access to areas that might otherwise not exist. Overall, impacts would be beneficial, long-term, and range from minor to moderate at the local level, to minor Decision Area-wide.

Impacts from Forestry and Woodland Products

Under the No Action Alternative, route restrictions and closures could occur during forest product management activities, directly affecting travel and transportation management in the short term as travel is restricted from the activity area. Short-term effects could also include an increase of forestry-related traffic on BLM-administered roads/routes, an increase of motorized vehicle traffic on roads/routes that remain accessible until forest product management activities cease, and an increase of motorized and non-motorized conflicts on the remaining accessible roads/routes. The majority of impacts to the route network would occur in areas with the greatest concentrations of timber. Road or route closures to provide safety buffers to public uses would be determined based on the location of the project and what access routes would be necessary for the extraction of timber values. Although it is unknown as to the number of miles or roads/routes affected, or the frequency that harvest activities would occur, it is assumed that that temporary road or route closures would be implemented under all harvest situations. Damage to road networks from product extraction may also have short-term impacts until damaged sections could be repaired. Beneficial impacts would result if additional roads and trails are developed and, unless decommissioned after the activity, are available for public use. Overall, local, adverse impacts would be short-term and minor, while local beneficial impacts would be both short- and long-term and minor. All Decision Area impacts would be negligible.

Impacts from Minerals

As mineral exploration/developments occur, any roads or trails developed on public lands to access those minerals would be open to public use. Based on past mineral exploration and developments that have occurred within the Decision Area, the total miles of road or trails constructed would be minimal, although the development of some of these route systems could provide public access into areas where none previously existed. Adverse impacts to the travel

and transportation network could occur as a result of reclamation requirements under the mining law, which would remove any developed public road or trail access created by the mining activity. Additional negligible impacts would occur in the short term by restrictions placed on access to areas where mining activities are occurring in order to ensure public health and safety. Such impacts (both adverse and beneficial) would be long and short-term and range from negligible to minor at the local level. Impacts to the Decision Area as a whole would be negligible.

Impacts from Recreation

Under the No Action Alternative, recreation developments such as facilities and/or public access to such facilities occur only to meet consistent use needs/demands for public satisfaction, where appropriate or possible. Based on facility developments that have occurred since the development of the current Baker RMP (BLM 1989), the addition of roads/trails that would be associated with new developments would not be of significant length to benefit the overall interim route network. These new access roads would typically be short and only designed to reach the facility. On the other hand, random OHV use as a result of the predominantly "open" classification of public lands can, over time, create primitive routes and trails that could be identified for inclusion into the interim route network. Overall, impacts would be negligible at both the local and Decision Area levels.

Impacts from Travel and Transportation

Under the No Action Alternative, most (67 percent) of the Decision Area would be classified as "open" for motorized use. This would allow for the proliferation of motorized roads and trails to continue (see Map 2.11) as access to popular areas or motorized recreational exploration are sought by public users. The exact number of routes that have developed through use over time is unknown, since no accurate data on the exact number of roads and trails existed at the time of the current Baker RMP (BLM 1989). However, with changes in technology and the development of different types of OHV since that time, an increase in the number of trails whose tread width correspond with the vehicles of today are clearly noticeable and have increased during the past few decades. As motorized use increases in popularity, this could, over time, add to the total number of miles of routes into the interim route network as the users of the public lands seek their individual resource or recreational opportunities. In addition to the increase in the number of miles of the interim route network, additional requirements and intensities of maintenance to the travel and transportation network would be expected to occur to maintain access and the health and safety of the travelers of these systems. With ever-changing technological improvements to motorized and mechanized vehicles, more public lands become physically available to these uses. Indirect, adverse impacts could occur if the uncontrolled proliferation of roads and trails impact higher resource values, requiring that access to these areas be closed. Additionally, because no specific direction would be given for the development of a TMP (as in the current Baker RMP [BLM 1989]), all trails would be considered multi-use access. As use of the Decision Area increases over time, user conflicts associated with the travel and transportation network would be anticipated. These conflicts would, over time, result in a reduction in public

satisfaction of the travel and transportation network. Overall, short-term impacts at the local level would be beneficial and minor to moderate, while long-term impacts would be adverse and minor to moderate. Impacts at the Decision Area level would be negligible to moderate over the long term.

Impacts from Lands and Realty/ROW

Generally, land tenure adjustments that make public lands more contiguous and improve public access would enhance the interim route network of the Decision Area. In addition, ROWs or facility developments that involve road or trail construction and consider public access would, in association with those improvements, increase the mileage of routes available to the general public. Land acquisitions, land exchanges, or easements, regardless of their purpose, could also directly improve access and use opportunities for motorized and mechanized users. This would be achieved by combining lands into larger areas that would improve motorized or mechanized use of the roads or routes, or by gaining legal public access to previously inaccessible public lands that contain existing road or route systems. Through these processes, increases to the overall route network would expand motorized, mechanized, and non-motorized opportunities within the Decision Area. Impacts would be beneficial, long-term, and range from minor to moderate and the local level and negligible to minor and the Decision Area level.

Impacts from ACECs

There would be negligible impacts from the management of ACECs under the No Action Alternative.

Impacts Common to all Action Alternatives

Impacts from Climate

Construction and design requirements associated with larger peak flow events as a result of climate change could affect the development and maintenance intensities of the interim route network within the Decision Area. Allowing for design requirements, such as larger culverts, road grade requirements, bridges, or shallow water crossings, could have adverse impacts due to the need for maintenance, improvement, or construction costs, as well as the time required to make changes to components of roads or trails. On the other hand, beneficial impacts would result as conditions to road/trails are improved for access use and, in some cases, reduces impacts to other resources, which would allow road/trail use to continue. Adverse impacts would be both short- and long-term, and minor in nature as construction changes and maintenance are made to the network as needed. Beneficial impacts would also be short- and long-term, and negligible to minor in magnitude. Both beneficial and adverse impacts would be noticed at local levels, but be negligible to minor Decision Area-wide.

Impacts from Wildlife/Special Status Species

Wildlife management activities under the No Action Alternative could directly affect travel and transportation management if road, trails, or areas are restricted temporarily, seasonally, or permanently to protect wildlife species or their habitat. Protection of special status species, as well as those that are susceptible to motorized, mechanized, or non-motorized uses, would be determined on new listings under the ESA state listing of sensitive species, or as a result of new data that develops over time in regards to the impacts of travel and transportation on various species and their habitats. Limitations to motorized, mechanized, or non-motorized uses within the route network could occur at any time as data, information, regulations, or monitoring determinations develop. The impacts from these actions would depend on the location and size of the area, type and the amount of use (i.e., motorized, mechanized, non-motorized) occurring in the affected area, as well as the duration of restrictions (e.g., seasonal, temporary, or permanent). Localized adverse impacts could be short- (seasonal) or long-term (closure) depending on the time frames required offsetting resource concerns or conflicts, and would range from minor to moderate. Decision Area-wide impacts would be negligible.

*Alternative 1*Impacts same as under the No Action Alternative

- Impacts from Forestry and Woodland Products
- Impacts from Minerals

Impacts from Special Status Species

Impacts would be the similar to those described under the No Action Alternative, except for additional impacts due to seasonal restrictions that would be implemented during sage-grouse lekking season on roads that could impact this species. It is unknown at this time as to the exact number of roads that would be affected because leks develop, relocate, or disappear and can move closer or further away from the interim route network. Adjustments to these areas as well as the seasonal restrictions would change accordingly over the life of the RMP. However, the short duration of the closure periods as well as the BLM managed roads/trails that exist in areas that could be affected would not have a large impact on public access or public satisfaction due to the use limitation of the interim route network as a whole. Overall, impacts would be adverse, but would be short-term and minor at local levels. Negligible impacts would occur to the interim route network of the Decision Area overall.

Impacts from Visual Resources

Under Alternative 1, the reclassification of public lands, along with any appropriate designations from the current Baker RMP (BLM 1989), would increase the acreage of VRM Class I, II, and III (403,086 acres) throughout the Decision Areas, based on scenic quality, public sensitivity, and distance zones of viewsheds. These higher classifications, depending on the travel and

transportation need, could impact how, where, or if travel and transportation projects could occur. Conversely, beneficial impacts could occur since the overall interim route network directly benefits from the protection of visual resource, which is a primary resource (i.e., driving for pleasure) that affects the type and amount of use of the network. Comments during public scoping meetings, as well as public use monitoring and conversations over time, indicate that most users of public lands, regardless of their mode of access, seek the visual aesthetics of the lands they use or at the very least consider the visual aesthetics as a component of their overall visitor satisfaction. With this information, it is reasonable to assume that providing visual protection to the landscapes of the Decision Area would draw more use to the current and future interim route network as users seek to enjoy those landscapes. This, in turn, provides for the maintenance and/or improvement of that route system to meet the satisfaction both publicly and administratively in both the short and long term. Adverse impacts would be minor, both short- and long-term, and localized, while beneficial impacts would be long-term, minor to moderate, and Decision Area-wide.

Impacts from Lands with Wilderness Characteristics

Under Alternative 1, the BLM would protect identified lands with wilderness characteristics and close the interim route network in the identified lands with wilderness characteristics adjacent to McGraw Creek WSA (approx. 2.5 miles) and four of the USFS potential wildernesses and limit motorized/mechanized uses to designated roads/trails within the lands with wilderness characteristics adjacent to Homestead WSA (approximately 1.5 miles) and the remaining four of the USFS potential wildernesses. The degree of impacts would be based on the number of “cherry-stem” roads and trails that could have negative impacts on the wilderness characteristics. Impacts would be negligible to minor, adverse, and long-term at the local level, and negligible throughout the Decision Area.

Impacts from Facilities

Under Alternative 1, facility and associated interim route network improvements would occur only as a result of public or administrative demands and/or required resource protection. If facilities are approved and the associated roads and trail systems have negligible impacts to other resources, or could benefit other resources by their use, addition into the interim route network as a motorized access could be allowed. This would directly benefit users within the Decision Area for the short and long term, especially if these systems are created in areas where access did not previously exist. Impacts would be beneficial, long-term, and minor at local levels, and negligible for the Decision Area as a whole.

Impacts from Recreation

Recreational motorized use of the Limited and Open designations would have a negligible impact on the road/trail system both directly and indirectly as road/trail proliferation would be a violation and therefore those roads and trails would not be authorized for future use. Through monitoring and observations as the quality of recreational experiences within the Decision Area

improve, in conjunction with increases in the popularity of motorized and mechanized means of access, it is reasonable and foreseeable that the use of the interim route network would also increase as recreationists seek their desired opportunities by utilizing this system. These increases in use would create impacts to the roads and routes, such as rutting, washboards, fugitive dust or user health and safety, which would dictate higher levels of road and trail maintenance and developments to meet both public and administrative satisfaction. Overall impacts from the management of recreation would be beneficial, long-term, and minor at local levels. Negligible impacts would occur at Decision Area levels.

Impacts from Travel and Transportation

With the change in OHV designations for the Decision Area under Alternative 1, authorized and identified roads/trails for motorized/mechanized uses would be allowed to occur while still providing for other resource concerns or uses. Under this alternative, which keeps most (79 percent) of the public lands as Limited for motorized/mechanized use (see Map 2.11), the use of roads/trails by motorized/mechanized methods would continue to occur. Limiting motorized recreation use to identified and authorized roads/trails, as well as closing public lands with no legal public access to motorized activities, would have minor to moderate impacts on motorized users who have historically traveled cross-country for back-country exploration, over snow vehicle use, and big game retrieval. However, these limitations or restrictions also aid in protecting other natural resources from potential impacts, which can create closures if resource conflicts cannot be mitigated. Limiting motorized uses to roads/trails would enhance the quality of the experience overall, as well as protect resource values and opportunities for recreational activities that are not directly associated with the interim route network. Road and trail standards would be maintained at current levels.

Upon the completion of the TMP, the BLM anticipates that, with the aid of public input, a wide range of quality non-motorized and motorized uses of the interim route network would occur. This travel management system would eventually provide more diversity and benefits by including designated non-motorized trails, as well as designated routes and trails for motorized Class I, II, and III OHV use, which would also be managed to provide public access and different levels of difficulty for different activities. In addition, if legal public access is gained to public lands that previously did not have access, existing road/trail systems on those lands would be analyzed for inclusion into the interim route network. Adverse impacts would be minor, long-term, and localized, while beneficial impacts would be long-term, minor to moderate, and localized. Decision Area-wide impacts would be beneficial and range from negligible to minor.

Impacts from Lands and Realty /ROW

Impacts would be similar to those described under the No Action Alternative. Since nearly all of the public lands proposed for exchange or sale are scattered, isolated parcels that do not have public access, exchanging them would not decrease the overall interim route network. Through land tenure adjustments, improvements to the existing transportation system could occur as public lands are consolidated and access to these areas is improved.

Impacts from ACECs

Depending on the specific management action of ACECs in the Decision Area (see ACECs in Chapter 2), road segments could be either “Limited” or “Closed” to motorized vehicle use depending on the specific ACEC values and the impacts or conflicts that motorized use could have on those values. These restrictions can affect the quantity of roads/routes available for motorized access of the interim route network within Hunt Mountain and Joseph Creek ACECs as these two areas would be closed to motorized uses. Only the Hunt Mountain ACEC has historic road systems present, but there is no legal public access to these roads, so negligible impacts to the route network would occur. Impacts would be long-term, adverse, and minor at the local level. Decision Area-wide impacts would be negligible.

Alternative 2

Impacts Same as Alternative 1

- Impacts from Special Status Species
- Impacts from Lands and Realty/ROW
- Impacts from Recreation

Impacts from Visual Resources

Impacts would be the same as described under the No Action Alternative, except that an increase would occur in the number of acres classified as VRM III and IV (301,412 acres; see Map 2.3), which would allow more latitude for the development or improvement of the interim route network meet demands and achieve public/administrative access satisfaction. Impacts under this alternative would be beneficial, long-term, and range from minor to moderate at the local level. Decision Area impacts would be expected to be negligible.

Impacts from Lands with Wilderness Characteristics

There would be negligible adverse impacts from the management of identified lands with wilderness characteristics under this alternative as a result of areas determined to contain characteristic values being given no specific protection. Minor beneficial long-term impacts would result at the local levels as any existing road/trail systems would still be available for motorized/mechanized uses. Decision Area impacts would be negligible.

Impacts from Facilities

Under this alternative, management emphasis would be more focused on economic facility developments as well as their associated access. If required to meet the demands of this economic focus, an increase in the amount of facilities developed, such as campgrounds, staging areas, etc., in the Decision Area as a whole could result and therefore build onto the existing interim route network if roads/routes are required to develop or reach new facilities such.

However, developments such as these in the past have shown that the increase to the interim route network would be minimal as only short segments of access roads or routes are required to reach these facilities. Impacts would be beneficial, long-term, and range from minor to moderate at local levels. Decision Area impacts would be the same except minor in magnitude.

Impacts from Forestry and Woodland Products

Impacts would be the same as described under Alternative 1, except that there would be an increase in beneficial impacts as authorized roads/trails developed for the purpose of forest product extraction are allowed to be incorporated into the interim route network for general public uses if they directly benefit or offer an opportunity to protect other resources by their continued use. Adverse impacts would be short-term and minor at the local levels as forest products are extracted and temporary closures put in place for user safety at the local levels. Beneficial impacts would be minor to moderate at the local level and long-term as routes are authorized for inclusion into the interim route network. Decision Area impacts would likely be negligible to minor.

Impacts from Minerals

Impacts would be the same as described under the No Action Alternative, except that the road/trails developed during mineral exploration/development could remain Open and available for use as long as they do not degrade or conflict with higher priority resources.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that the change in OHV designations for the Decision Area keeps 84 percent of the public lands as “Limited” for motorized/mechanized use (7 percent would be Open, and 9 percent Closed; see Map 2.11). This would allow for the continued use of roads/trails by motorized/mechanized methods, as well as allowing for 7 percent of BLM acreage where Open cross country exploration and use would be allowed. Impacts to the interim route network could occur from additions to road and trail segments that result from commodity developments, if those segments or their continued use do not negatively impact other resource values. However, the impacts from these additions, as well as the OHV acreage changes under this alternative, would be negligible compared to Alternative 1. Road and trail standards would be maintained or improved to meet requirements for commodity extraction. This increase in road standards could benefit the interim route network as a result of the higher maintenance intensities and development requirements of the larger vehicle access for commodity developments. Overall impacts would be long-term, range from minor to moderate, and be beneficial at the local level. Decision Area impacts would be expected to be negligible to minor.

Impacts from ACECs

Impacts would be the same as described under Alternative 1, except that no new additions of ACECs from those identified currently would occur. Therefore, no specific limitations other than those identified in the OHV designations would occur (see Map 2.11).

Alternative 3Impacts Same as the No Action Alternative

- Impacts from Minerals

Impacts Same as under Alternative 1

- Impacts from Special Status Species
- Impacts from Lands with Wilderness Characteristics
- Impacts from Forestry and Woodland Products
- Impacts from Minerals
- Impacts from Lands and Realty/ROW
- Impacts from ACECs

Impacts from Visual Resources

Impacts would be the same as described under Alternative 1, except that there would be a slight increase in the number of acres classified as VRM II as a result of the NHOTIC viewshed buffer. This additional acreage would further add to adverse impacts on the interim route network for both the short and long term if necessary roads/trails could not be developed without impacting this visual buffer. However, these additional adverse impacts would be negligible.

Impacts from Facilities

Impacts would be the same as described under Alternative 2 except that all facility developments or improvements under this alternative are designed to enhance the recreational attractiveness of those facilities. This would directly and indirectly affect the public access satisfaction by increasing the quality and quantity a multitude of access methods of the interim route network. Additional, but minor adverse impacts would occur to the interim route network as increased recreational uses create additional maintenance or improvement needs to meet public satisfaction. Decision Area impacts would be negligible.

Impacts from Recreation

Impacts would be the same as described under Alternative 1, except that additional benefits could occur from the specific developments of recreational facilities in order to promote recreational attractiveness of Decision Area resources. These facilities could add to the interim

route network as their development requires improved or new access roads/trails. Impacts under this alternative would be long-term, beneficial, and minor at the local levels. Negligible impacts would be expected at the Decision Area level.

Impacts from Travel and Transportation

Impacts would be similar to those described under Alternative 2, except that the emphasis under this alternative would be directed towards recreational use, and the change in OHV designations for the Decision Area would be: 7 percent Open, 83 percent Limited, and 10 percent Closed (see Map 2.12). These designations would allow for the continued use of roads/trails by motorized/mechanized methods. The emphasis on recreational attractiveness for the Decision Area is not expected to impact the interim route network more than those impacts identified under Alternative 2. Some additional minor benefits could result from maintaining or improving road standards to meet the variety of recreational vehicles, as well as providing for a variety of recreational uses; however, these impacts would be negligible.

Alternative 4

Impacts same as under the No Action Alternative

- Impacts from Minerals Management

Impacts Same as under Alternative 1

- Impacts from Facilities
- Impacts from Forestry and Woodland Products
- Impacts from Recreation

Impacts from Special Status Species

Under this alternative, management actions would close the Virtue Flat ACEC and would therefore remove 41,822 acres (approximately 10 percent) of public lands and any road/trail systems from the interim route network. This action would only affect BLM-managed roads/trails (approximately 165 miles), but would not affect county road systems, legal ROWs, or other legitimate authorized access, nor would it impact the use of the Virtue Flat OHV Play Area. However, general public motorized use of, or the development/improvement of motorized roads/trails within the ACEC, would not be allowed. Minor, beneficial impacts could occur by creating a large area where the historic road and trail systems would be used for non-motorized pursuits such as hiking, biking and horseback riding. This area would not be completely devoid of motorized use since roads/trails not controlled by the BLM, such as the county road system, would still be utilized. However, a reduction in motorized intrusions would occur. Some public satisfaction for non-motorized users would occur from the closure of this area. Impacts to the interim route network would be both adverse and beneficial. Adverse impacts would occur to the motorized users of the area, would be long term, and minor to moderate in magnitude at the

local level. Beneficial impacts would be created for non-motorized users of the interim route network. These impacts would be minor, long term, and localized. The Decision Area would experience negligible to minor, adverse and beneficial impacts from the management of special status species under this alternative.

Impacts from Visual Resources

Impacts would be the same as described under Alternative 1, except that there would be a large increase in acreage designated under the VRM Class III (37 percent), as well as a significant reduction of Class IV acreage (.5 percent; see Map 2.5). The increase in VRM III acres under this alternative could create additional impacts if road/trail development or maintenance activities could not be mitigated enough to meet VRM requirements. However, visual characteristics and scenic qualities are a primary reason for activities occurring on roads/trails of the interim route network. As visual quality is protected or improved, it would be expected that the interim route network would experience higher demands and would require more maintenance/improvements to accommodate the various forms and methods of use on those networks. Overall impacts would be minor, both adverse and beneficial, and localized over the long term. Decision Area impacts would be negligible to minor, both adverse and beneficial, and long term.

Impacts from Lands with Wilderness Characteristics

Impacts would be the same as described under Alternative 1, except that the areas would be closed to motorized uses. This removal of the Homestead and McGraw contiguous lands with wilderness characteristics to motorized forms of travel would change the level of maintenance of the roads/trails from being designed at maintained for motorized access, down to the level required only for mechanized and non-motorized uses. However it would not change the currently identified network unless required to protect the characteristic values as those existing routes would still be the identified access for allowed mechanized uses. Additional impacts would be negligible.

Impacts from Travel and Transportation

Impacts would be the same as described under Alternative 1, except that the change in OHV designations for the Decision Area under this alternative would be approximately 1 percent Open, 69 percent Limited, and 30 percent Closed to the continued use of roads/trails by motorized/mechanized methods, and roads with no legal public access would be Closed to motorized uses for the life of the RMP (see Special Status Species restrictions and Map 2.13). Although the acreage change in OHV designation has negligible differences from Alternative 1, closing all roads without legal access for the life of the plan would permanently, or at least for the life of the plan, remove a number of road segments from the interim route network regardless if legal public access to those systems is gained in the future. If access is gained in the future, road/trail use or development would only allow non-motorized access. Additional adverse impacts would occur under this alternative as road/trails standards are reduced and previously

identified roads are allowed to degrade and ultimately become motorized primitive trails, as long as they do not adversely impact other resource values. This reduction could directly affect the use of components of the interim route network by all except specialized access methods (ATV, mechanized, modified Class II, etc.). Impacts would be adverse, minor to moderate, and long-term at the local level. Decision Area impacts would be negligible to minor, long-term, and adverse.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative 1, except that access to BLM lands that currently has no legal public access, would only be accessible for administrative purposes. In addition, changes in the amount of acreage identified as Exclusion or Avoidance areas would restrict or eliminate the potential for additions to the interim route network as a result of authorized road and trail developments. However, additional impacts under this alternative would be negligible at both the local and Decision Area levels.

Impacts from ACECs

Impacts would be the same as identified for the “Special Status Species” of this alternative (see above).

Alternative 5 and 5a

Impacts Same as under the No Action Alternative

- Impacts from Minerals

Impacts Same as under Alternative 1

- Impacts from Special Status Species
- Impacts from Facilities
- Impacts from Forestry and Woodland Products
- Impacts from Recreation

Impacts Same as under Alternative 4

- Impacts from Visual Resources
- Impacts from Lands with Wilderness Characteristics
- Impacts from Travel and Transportation
- Impacts from Lands and Realty
- Impacts from ACECs

c. Cumulative Impacts

No Action

Past management of the interim route network for the Decision Area has allowed the use of roads, primitive roads, and some trails to access both primary and dispersed use areas for public and administrative purposes. Public access to BLM-administered public lands is directly associated with road and primitive road systems of other agencies or BLM issued ROWs. Some of these agencies include, but are not limited to, state and federal highways and interstate systems, other federal or state agencies (USFS and State Parks), and various counties (see Table 4-9).

Road Ownership	Owner designation	Miles
BLM	Inventoried Roads	569
County	BLM/County	123
USFS	BLM/USFS	15
BLM Unknown	Inventoried Primitive Roads or Trails	500
Total		1,207
Total road/density controlled by BLM		1,069

These other road systems maintained and controlled by the various agencies listed create the primary access to the BLM lands and the BLM interim route network, which usually stems from these associated systems. Often it is the interlinking between these various road or route networks, as well as their maintenance conditions, that draw uses to the BLM interim route network. For instance, areas of the USFS that are highly utilized by hunters are sometimes accessed initially over BLM-managed road or route networks. This nexus between the various agencies can create increased use patterns for all of the associated route networks. The maintenance intensities established and implemented for these road segments can vary depending on the specific requirements of each agency as well as purpose and use demands of those roads, primitive roads, and trails. The BLM has also based maintenance intensities primarily on public or administrative use demands or public health and safety. However, with the reductions in available funding over time, the condition of some lower priority BLM roads in the Decision Area have degraded. For instance, roads once maintained at levels to allow for standard passenger car year-round use have degraded to the levels of primitive roads or trails that are seasonal in use and only accessible to high clearance vehicles. Although the specific amount is not clear due to the lack of information collected for the development of the current Baker RMP (BLM 1989), it has been observed that since the development of that plan and the OHV area designations, the Open classification of the Decision Area for several decades has led to a proliferation of primitive roads, trails, routes, and ways across Decision Area lands. An unknown number of these trails are from historic “jeep” uses developed prior to the 1989 plan, while others continue to develop due to the increases in motorized/mechanized uses of the public lands and the technological improvement of motorized/mechanized equipment that allows for lands once thought un-reachable to become easily accessed.

Current use demands are increasing as the population of Oregon and neighboring states increases, and as a variety of federal and state ownerships further restrict motorized uses. Additionally, by observing both users and equipment, as well as what can be found for sale at dealers or in newspapers, the affordability and availability of various forms of motorized/mechanized equipment, both new and used, continues to add to the number of individuals who access public lands and the route networks that exist upon them. Maintenance intensities for roads, primitive roads, and trails associated with the Decision Area, as well as those associated with other federal, state, or county agencies, are not expected to increase in the near future. However, for the BLM, an increase could be seen in isolated cases where necessary for human health and safety or to mitigate negligible effects on higher priority resources. Therefore, no change in either the satisfaction of or the methods of use on the roads in the Decision Area would be anticipated. Roads, primitive roads, and trails would be used as they have in the past with changes being primarily associated with population increases and equipment availability. The Open classification for the Decision Area would support the continued proliferation of primitive roads, trails, routes, and ways as the public seeks out a variety of public land opportunities. The use of the various forms of motorized or mechanized access would adjust to the road/trail conditions as maintenance levels either improved or degraded current interim route networks. Technology will continue to add to this availability as motorized and mechanized forms of access continue to evolve to compensate for abilities of riders, or to perform in more rugged terrain. Over time, uses on public lands, either BLM or other federal and state lands, by motorized and mechanized users will disperse to areas that accommodate the desired experiences, as well as the capabilities, of the users or their equipment. In some cases, these uses could migrate to private properties if agency directions do not evolve to meet the demands of the users or of the types of uses. These non-public land impacts could be moderate to major as fewer regulations or limitations would exist. In addition, some of this use would occur in the form of un-authorized or illegal access, which can create additional conflicts among all users, as well as the relationships between private landowners, public users, and the various agencies.

An increased and changed demand upon public lands is reasonably foreseeable in the future because population growth is expected to continue to increase for Oregon and adjacent states, and the use of the existing and future interim route network would increase respectively (Bureau of Economic Analysis 2005; Portland State University 2004; State of Washington 2007). Unforeseen advances to motorized and mechanized equipment would be expected to develop overtime, thereby forcing similar changes in management to compensate. For instance, other innovative demands and uses, such as private helicopter and hovercraft could develop over time, but to say that those numbers would be large would be speculative in nature at this time. Although uses such as these are limited now and impossible to predict with precision for the future, they are a glimpse of things to come.

Alternative 1

Under this alternative, the satisfaction of the public would likely be met, although altered, by identifying areas where Open classifications for OHV use would be greatly decreased (see Map

2.10). Although this classification does not directly affect the interim route network as a whole, it does directly change the potential for roads, primitive roads, trails, routes, and ways to be developed over time by general public uses. This alternative removes, or at least does not authorize, cross-country public use and the proliferation of more primitive accesses (i.e. trails, routes, and ways).

Additionally, the interim route network would be impacted by limiting the existing roads, primitive roads, trails, routes, and ways for lands that have no legal public access to be utilized only by non-motorized methods. This action does not specifically remove those systems, but does remove the motorized use of those systems and reduces maintenance levels to only those required to meet human health and safety for non-motorized access.

Although the interim route network is still highly influenced by the population dynamics of the state, as well as current and future modes of access, this alternative would be expected to directly, indirectly, and cumulatively meet the demands of non-motorized, motorized, and mechanized uses of the future by being designed to react more proactively to the public and administrative demands that develop over time within the Decision Area. Cumulative impacts to the interim route network would be expected to be beneficial and adverse, long-term, and minor at the local levels. Decision Area cumulative impacts would be expected to be negligible.

Alternative 2

Under this alternative, travel and transportation management would be directed towards meeting the motorized users satisfaction by offering the most lands available for Limited (357,891 acres) and Open (30,355 acres) motorized uses. Although the uses would be temporary due to the interim route network pending the completion of the TMP, it is reasonably foreseeable that the scoping process of the TMP would show motorized uses to be a significant demand. The BLM would continue to manage roads, primitive roads, and trails within Open areas to protect sensitive resources if needed (i.e. wildlife and cultural resources), which could preclude some unrestricted cross-country travel. Currently Limited areas would continue to be Limited to existing identified routes for all use methods as “shared” systems until the completion of the TMP. These systems would continue to allow year-long access unless higher priority resources seasonally, temporarily, or permanently close that access. Within Closed areas, the BLM would not maintain the interim route network unless necessary to protect sensitive resources.

However, this alternative provides the opportunity to allow authorized roads, primitive roads, trails, routes, and ways created for specific project accesses to be included into the interim route network if not in conflict with other resource needs. Over time, this direction, in addition to the increase in acres associated with “Open” classifications, would be expected to compensate for population growth and demands into the future. The ability to use project-based access developments or to create new access opportunities would be an asset in meeting the public desires and demands.

Cumulatively, new authorized road systems could support the current interim route network, as well as relieve stress and user conflicts created by high use levels. In addition, more opportunities would be created under this alternative to provide “use specific” methods of accessing the network. For instance, the increased number of roads, primitive roads, trails, routes, and ways would give the agency more opportunities to provide for specific access methods (i.e. non-motorized, motorized, or mechanized) in order to meet current and future public demands. Also, the interim route networks on Decision Area lands that do not have legal public access would still be authorized for motorized uses, unless specifically Closed to meet other resource objectives. This would maintain the mileage of current systems roads and trails, but would not cumulatively affect the satisfaction of public demands, since access to these areas would remain private. However, it does give a greater flexibility for administrative uses to occur, such as timber harvest, ROW developments, and mineral extraction, whereby road developments in these pursuits would be added into the interim route network either temporarily or permanently. This alternative would see the most beneficial, long-term impacts to travel and transportation resources, and these impacts would be moderate at the local level. Cumulatively, the impacts would still be minor, but beneficial, for the Decision Area.

Alternative 3

Under this alternative, direct, indirect, and cumulative impacts would only be negligible to minor compared to the cumulative impacts identified under Alternative 2. Area designations under this alternative would differ by only small amounts of acreage compared with those identified under Alternative 2 and would, therefore, be efficient at meeting the motorized and mechanized route needs and demands of a growing population of Oregon. The overall recreational focus of this alternative would directly improve various recreational resources of the Decision Area (i.e. campgrounds, facilities, staging areas, and OHV areas), for both private and commercial users. Furthermore, it would reasonably and foreseeable allow for improvement of the interim route network and/or final TMP network in order to promote and compensate for increased levels of recreational pursuits, while easily adapting to future changes in use levels or equipment advancements. It could also be speculated that the BLM's focus on this resource would have similar affects on other federal, state, local, or private entities, as they would also change their use facilities in order to compensate for the demands created by the recreational focus of the area. However, lands with no legal public access would be Closed to motorized uses under this alternative, and the impacts from that action would be the same as identified under Alternative 1. Although this affects the methods of use of these lands, it does not directly affect the interim route network. If these lands are accessed, the interim route network currently existing upon those lands could be used for non-motorized activities. Additionally, if lands gain legal access, the uses provided from the road systems would be reviewed to determine the current demands of local and regional populations, as well as the resources on these lands, in order to determine the appropriate form of use. Cumulatively, this alternative would offer the most benefit to the recreating public by focusing on recreation use at both the local and Decision Area levels. Impacts would be moderate and long-term for the local communities and residents, and would be minor to moderate for the Decision Area as a whole. This is due primarily to the recreational potential of Decision Area lands that could be harnessed and focused to provide tourist

attractiveness, destination resources for recreation uses, as well as providing economic boosts for communities located within the Decision Area.

Alternative 4

Under Alternative 4 the removal of 30 percent of the public lands to all motorized uses would have a moderate impact on the interim route network and access. The ever-increasing pressure on public lands to provide for motorized uses, in addition to the potential population growth of Oregon, will put increasing demands on public lands to fulfill the desires for these uses, to which this alternative would be the most limiting. Motorized activities in Oregon and adjoining states are an important use associated with public lands, and can be linked to most every activity from hunting and fishing, to photography and nature studies. The interim route network provides the opportunities for the public to pursue these, as well as other, public land pursuits. This alternative’s increase in areas with motorized closures, due primarily to the additional restrictions of the Virtue Flat ACEC, would not be expected to meet public demand and satisfaction since a majority of recreational pursuits are currently associated with motorized access. Additionally, this alternative would have direct and indirect impacts on the local communities (e.g., Baker City and Richland) by reducing the potential economic gain that comes from the support of all forms of recreational activities (see Table 4-10 and Table 4-11).

Resource Program	Number of Jobs Contributed		
	Total Program	Estimated Impact of Local Residents’ Recreation Activities *	Program Net of Local Resident Recreation
Recreation	117	40	77
Wildlife and Fish Rec.	44	17	27
Grazing	26	-	26
Timber	13	-	13
Minerals	4	-	4
Externally Funded	5	-	5
Payments to States/Counties	4	-	4
BLM Expenditures	55	-	55
Total BLM Management**	267	57	210

*Expenditures by local residents for recreation on public lands do not introduce “new” money into the economy. If local residents could not recreate on public lands, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, these portions of employment and labor income are not necessarily dependent on the existence of the opportunities provided by public lands.

**Totals may not add up due to rounding.

Resource Program	Thousands of 2010 Dollars		
	Total Program	Estimated Impact of Local Residents' Recreation Activities*	Program Net of Local Resident Recreation
Recreation	\$3,023	\$1,152	\$1,870
Wildlife and Fish Rec.	\$1,086	\$446	\$641
Grazing	\$354	-	\$354
Timber	\$411	-	\$411
Minerals	\$152	-	\$152
Externally Funded	\$126	-	\$126
Payments to States/Counties	\$143	-	\$143
BLM Expenditures	\$2,243	-	\$2,243
Total BLM Management*	\$7,537	\$1,598	\$5,939

*Expenditures by local residents for recreation on public lands do not introduce “new” money into the economy. If local residents could not recreate on public lands, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, these portions of employment and labor income are not necessarily dependent on the existence of the opportunities provided by public lands.

**Totals may not add up due to rounding.

Although it is reasonably foreseeable that there would be beneficial impacts in some areas for a portion of public lands users due to an increased quality of experiences and resource conditions as a result of the reduction of motorized uses, a large portion of land removed under Alternative 4 would moderately impact those who seek to enjoy the public lands by motorized methods. Cumulative impacts from this alternative to travel and transportation would be adverse, long-term, and moderate to major at the local level. Decision Area impacts would be negligible to minor due to the scattered ownership of Decision Area lands.

Alternative 5 & 5a

Direct, indirect, and cumulative impacts would be similar to those described under Alternative 4.

7. LANDS AND REALTY

This section presents potential impacts of the various planning alternatives on the Lands and Realty program, specifically on land tenure adjustments (i.e., disposals and acquisitions), land use authorizations (e.g., ROWs, permits, easements, and leases), public access, and withdrawals.

The purpose of the Lands and Realty program is to facilitate management of the lands and resources of the Baker Resource Area. The Lands and Realty program must follow policy, regulations, and laws when processing all lands actions. The program adapts in accordance with changing land management and resource needs and issues. As such, Lands and Realty program actions assist in the achievement of multiple use objectives. Lands and realty actions are vulnerable to any management action that would limit or deny authorization of an ROW, lease, or permit, or affect the BLM's ability to acquire or dispose of land or make other land tenure

adjustments. Thus, any management actions that limit or deny these Land and Realty actions are considered adverse impacts on the Lands and Realty program.

Land Tenure

Under the No Action Alternative, management direction for land tenure adjustments would not change. The two-zone division, Z-1 of retention/acquisition and Z-2 of disposal, would continue. It is likely that difficulties in administering public lands with a scattered land ownership pattern would continue.

Alternatives 1 through 5 propose a three-zone classification 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 provide isolated small tracts for sale or exchange. All lands within the Decision Area were analyzed for their resource values, proximity to federal lands and contiguousness when determining the zones. The goal for Zones 1 and 2 is to retain and consolidate large tracts of public lands. Z-3 provides for the disposal of those scattered and isolated public lands.

Land Use Authorization: Energy & Non-Energy ROWs/Leases/Permits

Energy development, in particular wind energy, has emerged as an issue of concern for the public. All wind energy development would require the issuance of a ROW and would be subject to site-specific analysis through the NEPA process. This plan analyzes energy development, including many renewable energy uses, within the broader category of ROWs.

The Section 368 energy corridor as identified in The Approved RMP Amendments/ROD for Designation of Energy Corridors on BLM Administered Lands in the 11 Western States (January 2009a) is designated as an energy transport corridor for compatible multimodal uses. The corridor is displayed on Map 3.21. No other ROW corridors would be designated due to the scattered land ownership pattern within the Decision Area. Management direction for linear ROWs emphasizes consolidating ROWs within existing use areas and corridors to the greatest extent possible.

Public lands are available for land use authorizations, including energy development, unless within an exclusion area. Exclusion and avoidance areas would be established in order to protect the resources of certain areas. Land use authorizations in open or avoidance areas would be assessed in accordance with NEPA prior to approval by the BLM, and mitigation measures would be required as part of the authorization process in order to minimize the impacts to the resources.

Exclusion Areas: Congressionally designated areas or areas with important resource values where land use authorizations would not be authorized in order to ensure the protection of the resources.

Avoidance Areas: Areas containing sensitive or unique resources where land use authorizations could result in impacts to the resources and may not be issued unless impacts to the unique resources can be avoided or mitigated.

Public lands identified as either “Avoidance” or “Exclusion” areas for land use authorizations would vary by alternative. Exclusion areas comprise from less than 1 percent to 24 percent of the Decision Area. In addition, there are exclusion areas specific to wind development in Alternatives 4 and 5 that comprise 28 and 57 percent of the Decision Area, respectively.

Public Access

Closing roads or not providing access to public lands reduces the flexibility and opportunity to site facilities and accomplish Lands and Realty goals. Public lands with no access reduce and/or eliminate the ability of the BLM to manage the resources of those lands. Alternatives 1 through 5 discuss the priority of access acquisition that would be pursued.

Withdrawals

Withdrawals are completed for many types of uses, including power site reserves, power projects, and administrative sites. In some cases, other federal agencies, such as the Bureau of Indian Affairs (BIA), US DOI, Bureau of Reclamation (BOR), and Federal Energy Regulatory Commission pursue and hold withdrawals. 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. Areas that are withdrawn from location and entry under the United States mining laws (30 USC Ch. 2) would close the surface and the subsurface estates to disposition under the mining laws. Proposed mineral withdrawal areas vary by alternative and comprise from between less than one to 23 percent of the Decision Area.

a. Indicators, Methods, and Assumptions

Lands and Realty Indicators

Management actions described in the proposed alternatives could result in impacts to the Lands and Realty program. Indicators used to quantitatively assess management changes include the following:

- Acres retained in public lands base
- Acres in Z-3 disposal areas
- Acres identified in open, avoidance, and exclusion areas for land use authorizations
- Public lands proposed for mineral withdrawal

Lands and Realty Methods and Assumptions

General Lands and Realty Assumptions

- Lands and Realty actions would occur under all alternatives.
- Site-specific impacts caused by Lands and Realty actions would be assessed in accordance with NEPA prior to approval by the BLM, and mitigation measures would be required as part of the authorization process.

Land Tenure Adjustment

- Retaining larger blocks of public land is advantageous to the BLM's management of all resources and programs by providing greater opportunities to manage vegetative and wildlife habitats and watersheds, create public recreation opportunities, manage forest/vegetative products, administer livestock grazing, protect cultural resources, and the like.
- Consolidation of public lands and elimination of isolated, scattered parcels of public land with low resource values is beneficial to the BLM and the public.
- Access to public lands for public use and for BLM administration is a high priority of the Lands and Realty program.
- Acquisition in the form of direct purchase, conservation easement, donation, or exchange would only be considered when there is a willing seller, available funds, and the goals and objectives of the RMP would be furthered.
- Any acquired land or acquired interests in land would be managed for the purposes for which they were acquired or in the same manner as adjacent or comparable public lands.
- The identification of lands for disposal in the Decision Area does not ensure that these lands would be sold or otherwise disposed.

Land Use Authorizations

- The BLM has limited discretion in restricting certain ROW authorizations. For example, the agency must provide reasonable access to private mineral estate and to private landowners with lands surrounded by public lands.
- The BLM would manage all land use authorizations, such as ROWs, in a way that minimizes impacts on both the natural and cultural resources, and other public uses of the Decision Area.
- Requests for land use authorizations would be considered within the Decision Area, with the exception of those areas identified as exclusion areas.
- Consolidation, co-location, and the use of established utility and travel and transportation corridors for compatible land uses shall be required to the greatest practical extent in order to minimize adverse environmental impacts and the proliferation of separate ROWs.

Magnitude of Impacts to Lands and Realty

Generally, any action that restricts or excludes Lands and Realty actions would be seen as a negative impact to the Lands and Realty program. For purposes of this analysis, the levels of effect on Lands and Realty were defined as follows:

- Negligible: The public would generally not notice restrictions in land use authorizations. Land use authorization exclusion areas would affect 1- 3 percent of the total land base in the Decision Area.
- Minor: The public may notice restrictions in land use authorizations, although most authorizations would not be denied. Land use authorization exclusion areas would be slight, but detectable (affecting 4-6 percent of the total land base in the Decision Area).
- Moderate: The public would notice restrictions in land use authorizations, including the need to implement mitigation measures. Land use authorization exclusion areas would be apparent (affecting 7-10 percent of the total land base in the Decision Area).
- Major: The public would be hindered by restrictions in land use authorizations, including denial of permit requests. Land use authorization exclusion areas would be very apparent (affecting more than 10 percent of the total land base in the Decision Area).

b. Impacts to Lands and Realty

Impacts to the Lands and Realty program in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Fisheries
- Wildlife
- Special Status Species
- Visual Resources
- Lands with Wilderness Characteristics
- Lands and Realty
- ACECs
- WSAs

Impacts Common to Alternatives**Impacts from WSAs**

The McGraw Creek WSA, Homestead WSA, and Sheep Mountain WSA would be managed as exclusion areas for land use authorizations. This would be approximately 15,351 acres, or 4 percent, of the Decision Area where no land use authorizations would be authorized, thereby having a minor, long-term, negative impact to the Lands and Realty program.

No Action Alternative**Impacts from Water Resources**

There would be no impacts from the management of water resources under the No Action Alternative because there are no management actions that limit or exclude Lands and Realty actions.

Impacts from Fisheries

There would be no impacts from the management of fisheries under the No Action Alternative because there are no management actions that limit or exclude Lands and Realty actions.

Impacts from Wildlife

There would be no impacts from the management of wildlife under the No Action Alternative because there are no management actions that limit or exclude Lands and Realty actions.

Impacts from Special Status Species

There would be no impacts from the management of special status species under the No Action Alternative because there are no management actions that limit or exclude Lands and Realty actions.

Impacts from Cultural Resources

There would be no impacts from the management of cultural resources under the No Action Alternative because there are no management actions that limit or exclude Lands and Realty actions.

Impacts from Visual Resources

Visual resource management could affect land use authorizations because facilities must meet the objectives for the VRM class in which they are proposed. In order to meet the objectives, a project may need to be mitigated, relocated, or eliminated. Land use authorizations for various development projects such as wind energy, solar, utility, travel and transportation corridors,

communication sites, and other developments would be the most restricted in VRM Class I areas where authorization would occur in very limited cases and only when the visual resources objectives are met. Lands and Realty actions would be more limited in Class II areas, while projects in Class III areas may need to be mitigated in order to reduce the impacts to the visual resources but would most likely not be denied. Class IV areas are generally open to land use authorizations and are thus the least impacting to Lands and Realty actions. Under the No Action Alternative, approximately 17,918 acres (4 percent) would be assigned VRM Class I rating, with the most stringent restrictions, and 33 percent of the Decision Area would be assigned to VRM Class II, which limit the types of actions or developments that could occur. Under VRM Class II, authorizations would need to be mitigated so that the casual observer would not see them. This could entail practices such as painting, screening, or relocating the proposed facility, which could add to costs or cause delays. Most of the Decision Area (62 percent) would be assigned to VRM Class III or IV, which would result in minor to moderate impacts due to the limited amount of restrictions.

Impacts from Lands with Wilderness Characteristics

No management actions are proposed for wilderness characteristics under the No Action Alternative; therefore, there would be no impact to the Lands and Realty program.

Impacts from Lands and Realty

Land Tenure Adjustment

Under the No Action Alternative, lands in the Decision Area would be placed into two land tenure classification zones. Zone 1 lands would be for retention or acquisition of land with higher public resource values; including multiple use, management efficiency, and public access to resources; or that have national, statewide or regional resource values and Z-2 (Z-2) would be for the disposal of land. A total of 409,153 acres (96 percent) would be classified as Z-1. Within this zone, acquisitions to increase public lands holdings in these areas would be emphasized. This would be a beneficial impact to the Lands and Realty program by consolidating high resource value lands to provide for more efficient and effective management. Approximately 20,601 acres (approximately 5 percent) would be classified as Z-2 lands and could possibly leave federal ownership. These lands are generally isolated areas with lower resource values and their disposal would have a minor, beneficial impact to the Lands and Realty program because they cannot be efficiently managed.

Land Use Authorizations

Under this alternative, ROWs would be excluded from Wilderness Areas and wild segments of WSRs for a total of 3,093 acres. Avoidance areas for ROWs would be WSAs, ACECs, and scenic and recreation river segments consisting of a total of approximately 52,504 acres. This would have a negligible, negative, long-term impact to the Lands and Realty program because the exclusion areas are less than 1 percent of the Decision Area. The avoidance areas (1 percent

of the Decision Area) would have a minor impact to the Lands and Realty program, but could have minor to major impacts on a project specific basis because design features and stipulations would most likely be required in order to develop within an avoidance area. These stipulations and design features could increase the cost and time associated with the development.

Public Access

Access acquisition would be pursued to meet management objectives. Obtaining access to isolated parcels of BLM lands so that they may be effectively managed and used by the public would have a long-term, moderate benefit at both local and Decision Area for the Lands and Realty program.

Withdrawals

Under the No Action Alternative, withdrawal from mineral entry would be pursued on approximately 213 acres of public land for Oregon Trail sites at Flagstaff Hill, Straw Ranch, and Echo Meadows, as well as 185 acres of the Keating Riparian RNA. This would have a negligible negative, long-term effect to the Lands and Realty program as the amount of lands that would prohibit mineral entry would be less than 1 percent of the Decision Area. Agency withdrawal review would continue as required by FLPMA. Under Section 204(l) of FLPMA, withdrawal reviews are mandated for the majority of withdrawn lands in the western states. Certain identified withdrawals could then be modified, extended, or revoked according to the processes outlined in Section 204(a) of FLPMA and further process guidance provided for in the BLM WO IM No. 96-145.

Impacts from ACECs

Land Tenure Adjustment

The BLM would pursue acquisition of privately owned lands adjacent to five of the ACECs (Joseph Creek, Grand Ronde River, Powder River Canyon, Oregon Trail, and Sheep Mountain) in order to increase protection of their relevant and important values. Acquiring new lands would result in land tenure adjustments and would benefit the both BLM and the public by protecting and enhancing the ACEC values and blocking up lands to provide for more cost effective and efficient land management. However, the magnitude of impacts to the Lands and Realty program would be dependent on the size of the land tenure adjustment and the restriction placed on the land that is acquired.

Land Use Authorizations

Under the No Action Alternative, 10 areas totaling 48,149 acres (11 percent of the Decision Area) would be managed as ACECs. Rights-of-way would be avoided within these ACECs. This would have a minor, negative impact to the Lands and Realty program overall. However; because ACECs are would be avoidance areas under this alternative, it could have minor to

major impacts on a project specific basis because design features and stipulations would most likely be required in order to develop within an avoidance area.

Public Access

Under this alternative, there would be no impact from the management of ACECs to the acquisition of public access because there are no management actions that limit or restrict the acquisition of public access.

Withdrawals

Within the Keating Riparian RNA/ACEC, a withdrawal from mineral entry would be pursued on 185 acres. In the Oregon Trail ACEC, a withdrawal from mineral entry would be sought for 213 acres of trail sites at Straw Ranch and Echo Meadows. If the withdrawals were completed, this would reduce the amount of public lands available to mineral entry by less than 1 percent. This would be a negligible, long-term, negative effect to the Lands and Realty program.

Alternative 1

Impacts from Water Resources

Land Tenure Adjustment

Under Alternative 1, there would be no impacts from the management of water resources for land tenure adjustment because there are no management actions that limit or exclude lands tenure adjustments.

Land Use Authorizations

Under Alternative 1, roads that are not needed for resource management would be removed within RCAs. This would have a negligible, long-term, negative impact to land use authorizations because there are few BLM roads in these areas and the access provided for in a ROW would continue.

Public Access

Under this alternative, there would be no impacts from the management of water resources to the acquisition of public access because there are no management actions that limit or prohibit acquisition of public access.

Withdrawals

Under this alternative, there would be no impacts from the management of water resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Fisheries*Land Tenure Adjustment*

Under this alternative, there would be no impacts from the management of fisheries for land tenure adjustment.

Land Use Authorizations

Under Alternative 1, development of new hydropower facilities would be restricted in waterways that support native and/or non-native fish species and/or their habitat. If existing dams were proposed for hydropower retrofitting, design features and stipulations would be required in order to protect native and/or non-native fish species and/or their habitat. This likely would result in a negligible, long-term, negative effect as hydropower would not be excluded. However, impacts could be greater, possibly minor to moderate, if a hydropower development was proposed and retrofitting was required. The retrofitting could increase the cost of construction and/or operation or could limit the size of the facility, thereby increasing the impacts.

Public Access

Under this alternative, there would be no impacts from the management of fisheries to the acquisition of public access.

Withdrawals

Under this alternative, there would be no impacts from the management of fisheries to the pursuit of withdrawals.

Impacts from Wildlife*Land Tenure Adjustment*

Under Alternative 1, land acquisition would be pursued to maintain and/or improve wildlife habitat connectivity. This would have a negligible, beneficial impact to the Lands and Realty program because the BLM would generally seek to block up lands and acquire areas with high resource values such as species habitat.

Land Use Authorizations

Under Alternative 1, developments would be required to be mitigated to protect wildlife travel corridors, habitat, and habitat connectivity. If the development could not be mitigated, it would have to be sited in an alternate location or denied. This would have minor, long-term, negative effects on the Lands and Realty program over the entire Decision Area. However, impacts to a specific proposed project on a local level could be more intense, having even major negative effects, both long- and short-term, but would be determined on a case-by-case basis.

Public Access

Under Alternative 1, there would be no impacts from the management of wildlife to the acquisition of public access.

Withdrawals

Under Alternative 1, there would be no impacts from the management of wildlife to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Special Status Species*Land Tenure Adjustment*

Under Alternative 1, proposals for the exchange or sale of BLM managed lands in areas where special status species and/or their habitat are present may not be achievable due to the potentially high resource values of the area. However, the magnitude of impacts to the Lands and Realty program would be dependent on the size of the proposed land tenure adjustment. The BLM generally wishes to retain areas with high resource values, such as special status species and/or their habitat.

Land Use Authorizations

Under Alternative 1, land use authorizations in areas where special status species and/or their habitat are present may need to be mitigated, constructed in alternative locations, or in some cases, eliminated from consideration. All ground-disturbing activities would be mitigated to reduce or avoid adverse impacts to the special status species and their habitat. This would have minor, long-term, negative impacts to the Lands and Realty program overall. However, negative impacts at the local level due to mitigation could range from minor to major, and be both short- and long-term, depending on the project and determined on a case-by-case basis.

Development of new hydropower facilities under this alternative would be restricted in waterways that support special status aquatic species and/or their habitat. If existing dams were proposed for hydropower retrofitting, design features and stipulations would be required in order

to protect these species and/or their habitat. This would likely result in a negligible, long-term, negative effect as hydropower is not excluded. However, impacts could be greater, possibly minor to moderate, if a hydropower development was proposed and retrofitting was required. The retrofitting could increase the cost of construction and/or operation or could limit the size of the facility, thereby increasing the impacts.

Specific protections would be put in place for sage-grouse habitat management under Alternative 1. These would include buffers around wind developments. There would be a 3-mile avoidance buffer for these developments around all leks. This amounts to 77,329 acres, or 18 percent, of the Decision Area that would be designated as an avoidance area for wind developments. If additional sage-grouse leks were discovered, the avoidance area would increase to include the new leks. There is an additional 10 percent of the Decision Area designated as avoidance or exclusion areas to protect sage-grouse key habitat. This would have a major, long-term, negative impact to the Lands and Realty program over the Decision Area by prohibiting land use authorization from occurring and by designating avoidance areas that would likely result in additional stipulations and design features, thereby increasing the costs and causing delays for the development.

Public Access

Under Alternative 1, the acquisition of physical and legal access, especially when ground disturbance is needed 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, eliminated from consideration if the acquisition would have a negative impact to the special status species. This could have negligible, long-term, negative impacts to the Decision Area, but minor to moderate impacts at the local level.

Withdrawals

Under this alternative, there would be no impacts from the management of special status species to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Visual Resources

Land Tenure Adjustment

Under Alternative 1, there would be no impacts from the management of visual resources to the land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustments actions.

Land Use Authorizations

Impacts would be similar to those described under the No Action Alternative, although the area impacted by each VRM Class rating would be different. Sixty-one percent of the Decision Area would be in Class I and II, which would require considerable mitigation in order for land use authorizations to occur. Many proposals in Class I would likely be denied due to the VRM management restrictions, which require that the level of change to the characteristic landscape should be very low and must not attract attention. It is not likely that uses such as communication sites and transmission lines could be mitigated enough to meet Class I objectives. All proposed projects (i.e. communication sites, transmission line, roads) would be mitigated to reduce or remove visual impacts to meet the requirements of the visual classifications of the project area. Thirty-three percent of the areas would be in Class III and 6 percent would be in Class IV. Overall, the negative impacts from Alternative 1 would increase compared with the No Action Alternative. These would be negative, long-term, moderate to major to the Lands and Realty program for both the Decision Area and the local area due to the high percentage of lands (60 percent) in Class I and II and the low percentage in Class IV (6 percent).

Public Access

Under Alternative 1, there would be no impacts from the management of visual resources to the acquisition of public access because there are no management actions that limit or prohibit the acquisition of public access.

Withdrawals

Under Alternative 1, there would be no impacts from the management of visual resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands with Wilderness Characteristics*Land Tenure Adjustment*

Under Alternative 1, there would be no impacts from the management of wilderness characteristics to land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustments actions.

Land Use Authorizations

Under Alternative 1, ROWs and/or developments would be excluded on lands identified with wilderness characteristics. The restriction or denial of any ROW for energy development, utility or travel and transportation corridors, fiber optic lines, communication sites, and other projects would result in a negative impact to such land use authorizations and the Lands and Realty

program in these areas. However, because of the relatively small area of wilderness characteristics (12,503 acres or 3 percent of the Decision Area), the long-term, negative impacts over the Decision Area would be negligible. Local impacts could range from minor to major.

Public Access

Under Alternative 1, the lands within the McGraw and Homestead contiguous lands with wilderness characteristics would be closed and/or limited to existing routes, thereby prohibiting acquisition of additional motorized access. This would have a negligible, long-term impact to the Lands and Realty program because these lands with wilderness characteristics account for only 3,152 acres, or less than 1 percent, of the Decision Area.

Withdrawals

Under Alternative 1, there would be no impacts from the management of wilderness characteristics to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands and Realty

Land Tenure Adjustment

The proposed three-zone division under Alternative 1 would benefit the Lands and Realty program by providing the opportunity to dispose of inaccessible, low resource value lands, while retaining and acquiring higher value, consolidated lands. Under Alternative 1, there is the potential for approximately 3,455 acres (less than 1 percent of the public lands within the Decision Area) to leave federal ownership. This would have a negligible beneficial impact to the Lands and Realty program both at a Decision Area level and at the project level. The remainder of the Decision Area would afford BLM the flexibility to use various methods of land tenure adjustment to create consolidated public land areas. This would have a long-term, minor to moderate, beneficial impact to the Lands and Realty program for both the Decision Area and the local level as consolidated lands are more efficient and effective to manage and generally contain lands with higher resource values.

Land Use Authorizations

In addition to Wilderness Areas and wild sections of WSRs, Alternative 1 would also exclude all sections of WSRs, Oregon Trail and Virtue Flat ACECs, wilderness areas, and lands with wilderness characteristics from land use authorizations, across a total of 72,618 acres, or 17 percent of the Decision Area. This is 69,525 more acres than the No Action Alternative, which means Alternative 1 would increase adverse impacts by excluding land use authorizations regardless of the type of use. In addition to the exclusion areas, approximately 33,299 acres, or 8 percent of the Decision Area, would be designated as avoidance areas for all land use authorizations. Designating the exclusion and avoidance areas would have a major, long-term,

negative impact to the Lands and Realty program for both the Decision Area and the local level by prohibiting all types of land use authorizations across the affected lands and by requiring special stipulations and mitigating measures in order to minimize potential adverse impacts in the avoidance areas.

Public Access

Under Alternative 1, the BLM would seek to acquire legal access to public lands. Access acquisition priority would be primarily for BLM management activities and secondarily for public recreational access. The impacts are basically the same as the No Action Alternative because both public and administrative access acquisition would be pursued.

Withdrawals

Withdrawal of public lands from mineral entry would be pursued on various lands in the Decision Area across a total of 20,096 acres. This is an increase of 19,698 acres compared to the No Action Alternative. This would have a minor impact to the Lands and Realty program by restricting mineral entry on 5 percent of the Decision Area. Local level impacts could range from minor to major.

Impacts from ACECs

Land Tenure Adjustment

Under Alternative 1, land acquisitions could occur from adjacent, willing landowners. The acquisition of adjoining lands to the ACECs would benefit the BLM and the public by protecting and enhancing the natural riparian or wildlife values of each ACEC. 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. However, the magnitude of impacts to the Lands and Realty program would be dependent on the size of the land tenure adjustment and the restriction placed on the land that is acquired.

Land Use Authorizations

Alternative 1 would designate 12 areas as ACES for a total of 83,756 acres. Land use authorizations would be excluded from the Oregon Trail ACEC and the Virtue Flat ACEC for a total of 43,719 acres (10 percent of the Decision Area).

Rights-of-way would be avoided on all other ACECs for a total of 40,037 acres (9 percent of the Decision Area). Avoiding ACECs may create additional expense for utility and energy companies by placing limitations on future development opportunities and requiring design measures and stipulations that would increase the cost or delay development. The exclusion and avoidance areas under this alternative comprise 29 percent of the Decision Area and would have

a major, long-term, negative impact to the Lands and Realty program for the Decision Area at the local level by prohibiting or limiting development from occurring.

Public Access

Under Alternative 1, there would be no impacts from the management of ACECs to the acquisition of public access because there are no ACEC management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 1, withdrawal from mineral entry would be pursued on the portions of ACECs designated in Alternative 1 that are within the areas of known historic mineral activity according to the current Baker RMP (BLM 1989). This would exclude mineral development on 4 percent of the Decision Area resulting in a minor, negative effect to the land and realty program for the Decision Area. Impacts could increase to moderate to major for the local level.

Alternative 2

Impacts Same as under the No Action Alternative

- Impacts from Lands with Wilderness Characteristics

Impacts from Water Resources

Land Tenure Adjustment

Under this alternative, there would be no impacts from the management of water resources for land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustment actions.

Land Use Authorizations

Under Alternative 2, roads within RCAs would be improved for commodity production. This would have a minor, long-term, beneficial impact to the Lands and Realty program for both the Decision Area and local areas by providing better access for land use authorizations.

Public Access

Under this alternative, there would be no impacts from the management of water resources to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under this alternative, there would be no impacts from the management of water resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Fisheries*Land Tenure Adjustment*

Impacts would be the same as described under Alternative 1.

Land Use Authorizations

Under Alternative 2, development of new hydropower facilities would be promoted in waterways that support native and/or non-native sport fish species and/or their habitat. If existing dams were proposed for hydropower retrofitting, design features and stipulations would be required in order to protect sport fish species and/or their habitat with an emphasis on improving the quality and quantity of recreational fisheries. The ability to develop hydropower would have a beneficial effect to Lands and Realty and the requirement to protect sport fish species would have a negligible, long-term, negative impact to the Lands and Realty program for the Decision Area. However, project specific, local level, negative impacts could be greater, possibly minor to moderate, if a hydropower development was proposed and retrofitting was required. The retrofitting could increase the cost of construction and/or operation or could limit the size of the facility, thereby increasing the impacts.

Public Access

Under Alternative 2, there would be no impacts from the management of fisheries to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 2, there would be no impacts from the management of fisheries to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Wildlife*Land Tenure Adjustment*

Under Alternative 2, there would be no impacts from the management of wildlife to land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustment actions.

Land Use Authorizations

Impacts would be the same as under Alternative 1, except that mitigations that are in conflict with commodity resources would not be included in the authorization. By not requiring the conflicting mitigations, the impacts to the Lands and Realty program would be reduced, resulting in a minor, long-term, beneficial impact to the Lands and Realty program.

Public Access

Under Alternative 2, there would be no impacts from the management of wildlife to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 2, there would be no impacts from the management of wildlife to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Special Status Species*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 2, the avoidance area for wind development would decrease to 2 miles around occupied sage-grouse leks, compared with 3 miles around all sage-grouse leks under Alternative 1. There would be 51,547 fewer acres in avoidance or exclusion areas compared with Alternative 1. These avoidance and exclusion areas include areas designated for the protection of special status species. Alternative 2 has the fewest number of acres in exclusion and avoidance areas; however, the wind development avoidance areas created for sage-grouse leks account for 19 percent of the Decision Area. This would have a major, adverse, long-term impact to the Lands and Realty program for the Decision Area, and could have up to major

impacts on a project specific basis at the local level, because the buffers would likely result in additional stipulations thereby increasing the costs and causing delays for the development.

Development of new hydropower facilities would be restricted in waterways that support special status aquatic species and/or their habitat. If existing dams were proposed for hydropower retrofitting, design features and stipulations would be required in order to protect these species and/or their habitat. This would likely result in a negligible, long-term, negative effect as hydropower is not excluded. However, impacts could be greater, possibly minor to moderate, at the local level, if a hydropower development was proposed and retrofitting was required. The retrofitting could increase the cost of construction and/or operation or could limit the size of the facility, thereby increasing the impacts.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Impacts from Visual Resources

Land Tenure Adjustment

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Impacts would be similar to those described under the No Action Alternative, although the area impacted by each VRM Class rating would be different. Class I and II lands would be designated over 30 percent of the Decision Area. Overall, Alternative 2 would have the least impact to the Lands and Realty program because it maximizes the acres placed in Classes III and IV (70 percent), which are the least restrictive classes to land use authorizations, although only 19 percent of the acreage is Class IV. However, the restrictions associated with 30 percent of the Decision Area being in Class I and II lands would have major adverse impacts to the Lands and Realty program for the Decision Area, and up to major impacts at the local level.

Public Access

Under Alternative 2, there would be no impacts from the management of visual resources to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 2, there would be no impacts from the management of visual resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands and Realty*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under this alternative, ROWs would be excluded from wilderness areas, WSAs, WSR corridors, and the Oregon Trail ACEC, for approximately 25,236 acres (6 percent) of the Decision Area. This is an increase of approximately 22,143 acres compared to the No Action Alternative. This is the least restrictive of all the action alternatives and would have moderate, long-term, negative effects to the Lands and Realty program for the Decision Area, but up to major impacts at the local level.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Under Alternative 2, withdrawal of public lands from mineral entry would not be pursued. The areas that are currently withdrawn from mineral entry would continue. This would have a positive impact to the Lands and Realty program because no additional acres would be pursued for withdrawal. Public lands that are not withdrawn would be available for mining activities.

Impacts from ACECs*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Impacts would be the same as described under Alternative 1 from the management of existing ACECs, with the exception that Hunt Mountain would not be designated as an ACEC. The management of ACECs generally restricts the land and realty actions that can occur within them. Therefore, due to the reduced number of ACECs, Alternative 2 would have a positive effect to the Lands and Realty program by providing more opportunities for site developments on public

lands. Because the number of existing designated ACECs would be reduced and no new ACECs would be designated under Alternative 2, overall adverse impacts due to total acres under ACEC management would be reduced compared to the No Action Alternative.

Public Access

Under Alternative 2, there would be no impacts from the management of ACECs to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 2, there would be no impacts from the management of ACECs to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Alternative 3

Impacts Same as under Alternative 1

- Impacts from Wildlife
- Impacts from Fisheries

Impacts from Water Resources

Land Tenure Adjustment

Under this alternative, there would be no impacts from the management of water resources for land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustment actions.

Land Use Authorizations

Under this alternative, there would be no impacts from the management of water resources to land use authorizations because there are no management actions that limit or prohibit land use authorizations.

Public Access

Under this alternative, there would be no impacts from the management of water resources to the acquisition of public access because there are no management actions that limit or prohibit the acquisition of public access.

Withdrawals

Under this alternative, there would be no impacts from the management of water resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Special Status Species*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 3, impacts to the Lands and Realty program would increase because there would be 131,302 more acres in avoidance or exclusion areas compared to the No Action Alternative. These avoidance and exclusion areas include areas designated for the protection of special status species. There are 8,971 acres (2 percent of the Decision Area) of key habitat for sage-grouse that are designated as exclusion areas for all land use authorizations. Avoidance areas include 1,530 acres (less than 1 percent of the Decision Area) of key sage-grouse habitat. There would be a 3-mile exclusion area for wind development (26 percent of the Decision Area) around all occupied sage-grouse leks. Despite having 26 percent of the Decision Area in a wind development avoidance area, because it does not include all land use authorizations, the impacts to the Lands and Realty program are not as high. This alternative would have a minor, adverse effect to the Lands and Realty program by prohibiting uses in exclusion areas and causing restrictions in avoidance areas, thereby requiring costly mitigations, delays, or relocation of the proposed facility.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Impacts from Visual Resources*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Impacts would be similar to those described under No Action Alternative, although the area impacted by each VRM Class rating would be different. Sixty-two percent of the Decision Area would be in Class I and II. Although Class I and II areas do not exclude land use authorizations, the majority of proposals in Class I would most likely be denied due to VRM management restrictions that require that the level of change to the characteristic landscape should be very low and must not attract attention. It is not likely that uses such as communication sites and transmission lines could be mitigated enough to meet the Class I objectives. All proposed projects (i.e. communication sites, transmission line, roads) would be mitigated to reduce or remove visual impacts to meet the requirements of the visual classifications of the project area. Those proposals in Class II would require considerable mitigation in order to meet VRM standards for land use authorizations to occur. Thirty-two percent of the area would be in Class III and 6 percent in Class IV. Overall, Alternative 3 would have long-term, moderate to major, negative impacts to the Lands and Realty program both for the Decision Area and the local area because of the high percent of lands in Class I and II and the low percentage in Class IV (6 percent).

Public Access

Under Alternative 3, there would be no impacts from the management of visual resources to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 3, there would be no impacts from the management of visual resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands with Wilderness Characteristics*Land Tenure Adjustment*

Under Alternative 3, there would be no impacts from the management of wilderness characteristics to land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustment actions.

Land Use Authorizations

Compared to Alternative 1, impacts to Lands and Realty management would be further reduced because lands with wilderness characteristics under Alternative 3 would be identified as avoidance areas instead of exclusion areas, which would allow land use authorizations in lands with wilderness characteristics as long as they do not degrade such characteristics. The projects

would most likely need to be mitigated in order to reduce the effects to the characteristic values. Because only 3 percent of the Decision Area involves lands with wilderness characteristics that would be protected, the necessary mitigation would result in negligible, negative, long-term impacts at the Decision Area level, and up to moderate impacts at the local level.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Under Alternative 3, there would be no impacts from the management of wilderness characteristics to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands and Realty

Land Tenure Adjustment

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under this alternative, ROWs would be excluded from wilderness areas, WSAs, WSR corridors, the Oregon Trail ACEC, the Virtue OHV Play Area and the NHOTIC Scenic Viewshed across approximately 40,500 acres (9.4 percent) of the Decision Area. This is an increase of approximately 37,407 acres compared to the No Action Alternative. Additionally, approximately 35,170 acres would be designated as avoidance areas for all land use authorizations and 111,229 acres as avoidance for wind energy. These avoidance and exclusion areas would account for 44 percent of the Decision Area (as compared with 13 percent in the No Action Alternative) and would have a major, adverse, effect to the Lands and Realty program by prohibiting uses in exclusion areas and likely requiring costly mitigations or relocation of the proposed facility in avoidance areas.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Withdrawal of public lands from mineral entry would be pursued on 6,041 acres within the Decision Area. This is an increase of 5,643 acres compared to the No Action Alternative. This would have a negligible, negative, long-term impact to the Lands and Realty program at both the Decision Area and local levels by prohibiting new mineral entry on 1 percent of the Decision Area.

Impacts from ACECs*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 3, 12 areas, or 47,992 acres of the Decision Area, would be designated as ACECs. All of these designated ACECs would either be avoidance or exclusion areas for land use authorizations. This would mean that development would either not be authorized or would potentially be limited or required to implement design measures and stipulations that could increase the cost or delay development. Overall, this alternative would have major, negative impacts to the Lands and Realty program because 12 percent of the Decision Area would be in an exclusion or avoidance area due to ACECs.

Public Access

Under Alternative 3, there would be no impacts from the management of ACECs to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Impacts would be the same as those described under Alternative 1, with the exception that the 42,022 acre Virtue Flat ACEC would not be pursued for withdrawal. This would reduce the negative impacts to the Lands and Realty program to negligible and long-term for both the Decision Area and local areas because only 1 percent of the lands pursued for mineral withdrawal would be due to ACEC designation.

Alternative 4Impacts Same as under Alternative 1

- Impacts from Wildlife
- Impacts from Water Resources

Impacts from Fisheries Management

Impacts would be the same as those described under Alternative 1.

Impacts from Special Status Species*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 4, impacts to the Lands and Realty program would increase because there would be 223,723 more acres in avoidance or exclusion areas compared to the No Action Alternative. These avoidance and exclusion areas include areas designated for the protection of special status species. There would be a 5-mile wind development exclusion area around all sage-grouse leks that are within and adjacent to the Virtue Flat and Denny Flat ACEC, as well as 125,652 acres of land use authorization avoidance areas for sage-grouse key habitat and 3,422 acres for special status plant species. This would have a major, adverse effect to the Lands and Realty program by prohibiting uses in exclusion areas and causing restrictions in avoidance areas, thereby requiring costly mitigations, delays, or relocation of the proposed facility.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Impacts from Visual Resources*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Impacts would be similar to those described under the No Action Alternative, although the area impacted by each VRM Class rating would be different, which would change the areas impacted by each VRM Class. Like Alternative 3, sixty-two percent of the lands would be in Class I and II. However, Alternative 4 would place only 2,698 acres in VRM Class IV (0.6 percent). Because a of the high percentage of lands in Class I and II and the very low percentage of lands in Class IV, this alternative would lead to the greatest restrictions on the Lands and Realty program. Almost every project would need to be moderately to highly mitigated in order to meet VRM standards, and no large facilities (i.e., wind energy, solar energy and ancillary structures) could occur without directly violating the VRM classifications. Impacts from this alternative would be adverse, long-term, and major at the local and Decision Area levels.

Public Access

Under Alternative 4, there would be no impacts from the management of visual resources to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Under Alternative 4, there would be no impacts from the management of visual resources to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands with Wilderness Characteristics*Land Tenure Adjustment*

Under Alternative 4, there would be no impacts from the management of wilderness characteristics to the land tenure adjustment because there are no management actions that limit or prohibit land tenure adjustment actions.

Land Use Authorizations

Impacts would be the same as described under Alternative 1.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Under Alternative 4, there would be no impacts from the management of wilderness characteristics to the pursuit of withdrawals because there are no management actions that increase the pursuit of withdrawals.

Impacts from Lands and Realty*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 4, all land use authorizations would be excluded from Wilderness Areas, WSAs, WSR corridors, Joseph Creek WSR (suitable) the Oregon Trail ACEC, Virtue Flat ACEC, Denny Flat ACEC, wilderness characteristic areas, and areas of key habitat for sage-

grouse across a total of approximately 74,971 acres (17.5 percent) of the Decision Area. An additional 44,328 acres would exclude wind development in order to protect sage-grouse and/or their habitat. This alternative would have major, long-term, negative effects to the Lands and Realty program for both the Decision Area and local areas by prohibiting land use authorizations on over 17 percent of the Decision Area and prohibiting wind energy development on 28 percent of the area. Under Alternative 4, approximately 160,021 acres would be designated as avoidance areas for all land use authorizations, including wind energy development. This is an increase in approximately 107,493 acres for all land use authorizations compared to the No Action Alternative. These avoidance areas could negatively affect the Lands and Realty program by requiring costly mitigations or relocation of the proposed facility.

Public Access

Under Alternative 4, the BLM would only seek to acquire administrative access to public lands. This would leave parcels of public land inaccessible by the public, resulting in minor to moderate, long-term, negative impacts for both the Decision Area and local areas.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Impacts from ACECs

Land Tenure Adjustment

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Alternative 4 would have the greatest number of acres (93,991) designated as ACECs, which would result in the greatest negative impact to the Lands and Realty Program. Of the approximately 93,991 acres of ACECs designated, 47,638 acres (11 percent) of the Decision Area would be excluded from land use authorizations due to the ACECs. The other 46,353 acres would be avoidance areas. This would increase the exclusion areas by 3,919 acres. There would be major, long-term, adverse impacts to the Lands and Realty program for both the Decision Area and local areas because of the increased exclusion areas.

Public Access

Under Alternative 4, there would be no impacts from the management of ACECs to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Alternative 5 and 5AImpacts Same as under Alternative 1

- Impacts from Wildlife
- Impacts from Water Resources

Impacts Same as under Alternative 4

- Impacts from Fisheries
- Impacts from Visual Resources
- Impacts from Lands with Wilderness Characteristics

Impacts from Special Status Species*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under Alternative 5 and 5a, impacts would increase due to the 5-mile wind development exclusion area around all occupied and unoccupied leks. This would increase the impacts to the Lands and Realty program, would have major, long-term, negative impacts to the Lands and Realty program for both the Decision Area and local areas because wind development would be prohibited within the exclusion areas.

Development of new hydropower facilities would be restricted in waterways that support special status aquatic species and/or their habitat. If existing dams were proposed for hydropower retrofitting, design features and stipulations would be required in order to protect these species and/or their habitat. This would likely result in a negligible, long-term, negative effect for the Decision Area as hydropower is not excluded. However, impacts could be greater, possibly minor to moderate, for the local area if a hydropower development was proposed and retrofitting was required. The retrofitting could increase the cost of construction and/or operation or could limit the size of the facility thereby increasing the impacts.

Public Access

Impacts would be the same as those described under Alternative 1.

Withdrawals

Impacts would be the same as those described under Alternative 1.

Impacts from Lands and Realty*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Under this alternative, ROWs would be excluded from wilderness areas, WSAs, WSR corridors, Joseph Creek WSR (suitable), wilderness characteristics areas, and all ACECs (excluding NHOTIC administrative site uses) across approximately 103,318 acres. Approximately 141,973 additional acres would exclude wind energy development to protect sage-grouse and/or their habitat. This alternative would have the largest amount of exclusion areas and major, long-term, adverse effects to the Lands and Realty program for both local areas and the Decision Area, as it prohibits land use authorizations on 24 percent of the Decision Area and excluding wind energy development on 57 percent of the Decision Area. Under Alternative 5 and 5a, approximately 3,961 acres would be designated as avoidance areas for all land use authorizations. These avoidance areas could negatively affect the Lands and Realty program by requiring costly mitigations or relocation of the proposed facility.

Public Access

Under Alternative 5 and 5a, the BLM would generally not seek to acquire access to public lands. There would be parcels of public lands that the public and the BLM could not access; therefore, Alternative 5 and 5a would have a moderate, negative, long-term impact to the Lands and Realty program for public access at the both local and Decision Area levels.

Withdrawals

Under Alternative 5 and 5a, the BLM would seek to withdraw 95,504 acres from mineral entry. This would have a major impact to the Lands and Realty program by reducing 22 percent of public lands available for mineral entry. This alternative would pursue the most acreage for withdrawal and, therefore, would have a major, negative, long-term impact to the Lands and Realty program at both the local and Decision Area levels.

Impacts from ACECs*Land Tenure Adjustment*

Impacts would be the same as those described under Alternative 1.

Land Use Authorizations

Impacts would be the same as those described under Alternative 4.

Public Access

Under Alternative 5 and 5a, there would be no impacts from the management of ACECs to the acquisition of public access because there are no management actions that reduce or prohibit the acquisition of public access.

Withdrawals

Impacts would be the same as those described under Alternative 4.

c. Cumulative Impacts*No Action Alternative*

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 geographical area considered for this analysis includes all lands within the Planning Area, which includes BLM, USFS, Bureau of Indian Affairs, BOR, Corps of Engineers, Department of Defense, USFWS, State of Oregon, and private land.

Land Tenure Adjustment

Since the current Baker RMP (BLM 1989) was completed, several land exchanges have taken place in order to acquire high resource value lands in the Grande Ronde, Wallowa River, Joseph Creek and Snake River Drainages. The public lands disposed of in the exchanges were generally isolated parcels with lower resource values. Through exchanges, approximately 15,081 acres have been conveyed out of federal ownership.

Over the last 20 years, the USFS has completed several land exchanges and direct land purchases in order to consolidate land ownership. The lands acquired were generally adjacent to the National Forest boundary and were gained in order to protect resource and recreational values. Those public lands disposed of were detached from the National Forest with lower resource or recreational values. There are two small land exchanges and one land purchase pending.

The State of Oregon's Department of State Lands has an active land tenure program that includes land sales, exchanges and transfers. The program strives to balance revenue generation with resource stewardship through the management of state lands. Currently there are approximately 1,520 acres of land owned by the Department of State Lands being evaluated and considered for sale, exchange, or transfer within the Planning Area.

Currently there are no BLM land tenure adjustment actions pending. Future actions would likely include various land exchanges and acquisitions in order to acquire high resource value areas, as well as to consolidate isolated parcels of land. The cumulative impacts of the past, present, and future land tenure adjustment actions would be long-term and beneficial to the Lands and Realty program due to the consolidation of high resource value public lands. Consolidated lands would make their management more cost effective and would reduce the amount of inaccessible public land, as well as reduce the amount of unauthorized uses associated with a scattered land pattern.

Land Use Authorizations

The BLM issues land use authorizations for power lines, roads, pipelines, communication sites, energy generation facilities, highways, fiber optics, and irrigation facilities, and other developments. The BLM has one designated energy corridor in the Planning Area. The Baker FO has approximately 450 active land use authorizations and approximately 10 pending land use authorizations. Overall, the Baker FO issues approximately 10 new land use authorizations a year. Based on past history, this demand is expected to continue.

This No Action Alternative has the least impact to the Lands and Realty program by having approximately 425,332 acres available for land use authorizations. Less than 1 percent of the public lands are excluded. These exclusion areas would have a negligible, adverse impact to the Lands and Realty program by prohibiting land use authorizations.

The USFS issues special use permits for various uses, such as transmission lines, pipelines, and fiber optics. There is one utility corridor designated by the USFS northwest of La Grande, OR that is approximately 3.5 miles long. Currently the USFS has no proposals for renewable energy development. However there are several proposals for communication sites, buried fiber optic cables, and transmission lines.

The number of land use authorizations, such as ROW grants, permits, and leases, that could be granted is a function of public demand. Future development of adjacent federal, state, and private lands, and the increase in interest in energy development, would likely lead to an increase in requests for and approval of land use authorizations for facilities such as roads, utilities, communication sites, and energy development. The B2H Project, proposed by Idaho Power Company, is a new 300 mile-long electric transmission line (single circuit 500kV) that would be located between the proposed Grassland substation near Boardman, Oregon to the existing Hemingway substation near Melba, Idaho. Approximately 18 miles of the transmission line would cross BLM lands within the Decision Area. Overall, Energy development should increase and, therefore, the requirement to issue ROWs for these uses would continue. It is expected that adjacent private, state, and county lands would be used in some areas for wind and other developments.

Public Access

Access to public lands is an important issue to the public and the BLM. There are many small parcels of public lands within the Planning Area that are inaccessible to both the public and the BLM. In order to provide access, the BLM must obtain (e.g. through purchase) an easement from a willing grantor. Frequently, private landowners are not willing to grant an easement for access. Therefore, because of the costs to the government and the lack of willing landowners to grant access, the need to provide access to public lands continues to be an important issue.

It is expected that with the scattered BLM land ownership along with the possibility that private landowners would be unwilling to grant easements, access to some BLM lands would continue to be unavailable. In the future, the BLM would continue to work with private landowners in order to gain needed legal access to public lands. Land tenure adjustments could also be used to facilitate the acquisition of access. Coordination with other federal and local governments would continue in order to maintain and acquire legal access to lands. Providing access to public lands would be a long-term, beneficial impact to the Lands and Realty program, as well as to the public.

Withdrawals

Currently, there are 3,602 acres of BLM lands within the Decision Area that have lands withdrawn, prohibiting the development of locatable minerals. Under the current Baker RMP (BLM 1989), a withdrawal from mineral entry was to be sought on 185 acres of the Keating Riparian RNA and for 213 acres of Oregon Trail sites at Straw Ranch and Echo Meadows. These withdrawals were never accomplished due to other workload priorities. Depending the alternative selected and workload priorities, future actions may include completing the proposed withdrawals. The cumulative effects of these actions would be negative and long-term due to the reduced availability of public lands for mineral entry.

Alternative 1

Land Tenure Adjustment

Under Alternative 1, a three zone division would be used in order to provide the opportunity to dispose of inaccessible, low resource value lands while retaining and acquiring higher value, consolidated lands. There is the potential for approximately 3,455 acres within Z-3 (less than 1 percent of the public lands within the Decision Area) to leave federal ownership. This would have a negligible, long-term, negative cumulative impact because of the small percentage of land in Z-3 within the Planning Area. Continued land tenure adjustment actions to consolidate parcels and acquire new high resource value lands would result in positive cumulative impacts for the Planning Area, as consolidated lands are more effectively and efficiently managed.

Land Use Authorizations

Under Alternative 1, management actions would be implemented that reduce the amount of lands available for land use authorizations by 71,052 acres. An additional 40,037 acres would be designated as avoidance, which would put restrictions on the land use authorizations, thereby further increasing the impacts. Overall, 26 percent of the Decision Area would be in exclusion or avoidance areas and the cumulative impacts from the management of this alternative on the Lands and Realty program would be negative, long-term, and major in magnitude. Due to the high percentage of lands in avoidance and/or exclusion areas, it is likely that developments would either not occur or would be pursued on adjacent private, state or other federal lands.

Public Access

Under Alternative 1, access for acquisition for administrative purposes would be the highest priority, followed by public recreational access. The presence of special status species and/or their habitat could affect the acquisition of access by increasing necessary mitigation. However, the overall, cumulative impacts would be negligible and short-term because of necessary mitigation. Impacts to the Decision Area would be minor and beneficial because access would be pursued for both BLM administration and public recreational uses.

Withdrawals

Alternative 1 would reduce the lands available for mineral entry by 20,096 acres. Because the lands that would be pursued for withdrawal are areas that have historic mineral activity, the overall impacts are greater than if the lands had no possibility for mineral location. Nearly 5 percent of the lands in the Decision Area would be closed to mineral entry. This could possibly cause mineral activity to move to adjacent private, state, or other federal lands. The cumulative impacts from the management of this alternative on the Lands and Realty program would be negative, long-term, and minor in magnitude.

Alternative 2

Land Tenure Adjustment

Impacts to land tenure adjustment would be the same as identified under Alternative 1.

Land Use Authorizations

Under Alternative 2, the ability to provide opportunities for uses such as energy development, roads, utilities, water lines, and communication sites is emphasized. This alternative would have the least adverse effects of all the action alternatives to the lands and mineral program because approximately 12 percent of the Decision Area would be in exclusion or avoidance areas, making 377,464 acres potentially available for all types of land use authorizations. A separate avoidance area would also be designated specifically for wind development. This accounts for

an addition 19 percent of the Decision Area. However, despite this alternative being the least restrictive, overall, the cumulative impacts from the management of this alternative on the Lands and Realty program would be negative, long-term, and major in magnitude.

Public Access

Impacts to public access would be the same as identified under Alternative 1.

Withdrawals

Alternative 2 would provide the greatest opportunity to develop mineral resources in the Decision Area. This alternative would have the least adverse affect to the Lands and Realty program because no additional withdrawals would be pursued and 424,823 acres or 99 percent of the Decision Area would be available for mineral entry. Overall, cumulative impacts from the management of this alternative on withdrawals would be beneficial, long-term, and moderate to major at the local level, and moderate for the Planning Area.

Alternative 3

Land Tenure Adjustment

Impacts to land tenure adjustment would be the same as identified under Alternative 1.

Land Use Authorizations

Alternative 3 provides opportunities for uses such as energy development, roads, and communication sites, while ensuring recreation opportunities are protected. This alternative would create 40,500 acres or 9 percent of exclusion areas that prohibit all land use authorizations from occurring. In addition, 35,170 acres (8 percent) would be in avoidance areas. Overall, because there would be 17 percent of the Decision Area in exclusion or avoidance areas, cumulative impacts from the management of this alternative on the Lands and Realty program would be negative, long-term, and major in magnitude.

Public Access

Under Alternative 3, recreational access would be the highest priority, followed by BLM administrative access. However; the impacts to public access would remain the same as identified under Alternative 1. The opportunity to develop and use public lands would be improved by providing access. Commercial, recreational, and administrative use of previously inaccessible lands would likely increase. This would have a long-term, beneficial impact to the Lands and Realty program.

Withdrawals

Alternative 3 would reduce the lands available for mineral entry by 6,041 acres. Over 1 percent of the lands in the Decision Area would be closed to mineral entry. This could possibly cause mineral activity to move to adjacent private, state, or other federal lands. Because the lands that would be pursued for withdrawal are areas that have historic mineral activity, the overall impacts would be greater than if the lands had no possibility for mineral location. The cumulative impacts from the management of this alternative on the Lands and Realty program would be negative, long-term, and negligible in magnitude.

Alternative 4Land Tenure Adjustment

Impacts to land tenure adjustment would be the same as identified under Alternative 1.

Land Use Authorizations

Alternative 4 reduces the land available for land use authorizations by creating 74,971 acres of exclusion areas and an additional 44,328 acres for wind development. In addition to the exclusion areas, 160,021 acres of avoidance areas for land use authorizations are established, which generally require additional stipulations or design features for the authorizations. Due to the exclusion areas, this alternative would force more land use authorizations onto other ownerships directly adjacent to public lands to try to compensate for the public land restrictions. The demand for land use authorizations is not expected to decrease. Therefore, having over 55 percent of the Decision Area in avoidance and exclusion areas as imposed by Alternative 4 would cause an overall cumulative impact to the Lands and Realty program that would be negative, long-term, and major in magnitude.

Public Access

Under Alternative 4, only BLM administrative access would be sought. Overall, this would have a minor cumulative, long-term impact to public access because existing access would remain the same but the public would not gain additional access routes.

Withdrawals

Impacts to withdrawals would be the same as identified under Alternative 1.

Alternatives 5 and 5ALand Tenure Adjustment

Impacts to land tenure adjustment would be the same as identified under Alternative 1.

Land Use Authorizations

Alternatives 5 and 5a would have the greatest adverse effect on the Lands and Realty program by contributing to an overall reduction in land available for land use authorizations. In this alternative, 24 percent of the Decision Area would exclude all land use authorizations and 57 percent would be closed to wind development. Due to the exclusion areas, it is likely that developments would move to adjacent private, state, or other federal lands. Because of the large proportion of lands excluded from land use authorizations, there would be major, long-term, negative cumulative impacts.

Public Access

Alternatives 5 and 5a would have the greatest negative cumulative, long-term impact to public access because additional access would not be sought for BLM administration or for the public. With the scattered land ownership pattern and lack of existing access to many parcels in the Planning Area, access would continue to be an issue with the public that Alternative 5 and 5a would not address. There would continue to be parcels of public lands which would have no legal access. The surrounding roads on private or other agency lands would not be improved or maintained to afford access.

Withdrawals

Alternatives 5 and 5a would have the greatest adverse effect to the Lands and Realty program by seeking 95,504 acres in additional withdrawals in areas of known historic mineral activity. If these areas are withdrawn, it is likely that mining activities would move to adjacent private, state, or other federal lands. Reducing the overall lands available for mineral entry by 22 percent would cause major, long-term, negative cumulative impacts.

D. IMPACTS TO SPECIAL DESIGNATIONS

1. AREAS OF CRITICAL ENVIRONMENTAL CONCERN AND RESEARCH NATURAL AREAS

Areas of Critical Environmental Concern are designated to identify, protect, and prevent damage to relevant and important historic, cultural, or scenic values; fish and wildlife resources or other natural systems or processes; or to protect life and safety from natural hazards. Management prescriptions are developed for each ACEC to protect and maintain the relevant and important values.

Research Natural Areas are designated to identify and manage areas containing relevant and important resource values for the purpose of scientific and educational uses of natural history resources. An RNA cell is a natural unit that encompasses one or more ecological assemblages called plant associations, which are defined by the dominant native plants that characterize the environment. The primary purpose of RNAs is to provide: 1) baseline areas against which

effects of human activities can be measured or compared, 2) sites for study of natural processes in undisturbed ecosystems, and 3) gene pool preserves for all types of organisms, especially rare and endangered types. Any RNA that is designated on public lands is also designated as an ACEC. Management prescriptions are developed for each RNA to achieve the goal of protecting and maintaining the values for which the area is recognized.

Outstanding Natural Areas are areas of outstanding scenic quality, natural wonder, or scientific importance that merit special attention and care in management to insure their preservation in their natural condition. Any ONA that is designated on public lands is also designated as an ACEC. Management prescriptions are developed for each ONA to achieve the goal of protecting and maintaining the values for which the area was designated.

This analysis evaluates the impacts to the relevant and important values from designation or non designation of various ACECs, RNA/ACECs and ONA/ACECs as prescribed by the various alternatives. Different alternatives portray different designations and in some cases different management actions.

a. Indicators, Methods, and Assumptions

ACEC and RNA Indicators

The BLM designates public lands as ACECs if they meet relevance and importance criteria listed in BLM Manual 1613 (see Chapter 3, Section 3.1) and if they require special management to protect such values. The BLM designates public lands as RNAs if they meet key natural attributes such as cells for the purpose of scientific and educational uses in accordance with BLM Manual 1623. If an ACEC and/or an RNA are proposed for designation, necessary management actions would be identified to protect the relevant and important values. The alternatives proposed in this Draft RMP/EIS have different ACEC and RNA designations, which would have different effects on the relevant and important values. In a few circumstances, management actions for a particular ACEC and/or RNA may also be different between alternatives. In these circumstances, the evaluation displays the impacts from implementation of different management prescriptions. If an area contains relevant and important values, but is not designated by an alternative, then the analysis will provide expected outcomes to the relevant and important values from not implementing the designation and associated management actions. Table 4-12 displays the acreage and area designations between alternatives.

Name	No Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Retained ACEC Acres						
Joseph Creek	3,497	3,497	3,497	3,497	3,497	3,497
Grande Ronde River	16,960	16,960	16,960	16,960	16,960	16,960
Keating Riparian	2,223	1,542	1,542	1,542	1,542	1,542
Powder River Canyon	5,906	5,906	5,906	5,906	5,906	5,906
Unity Bald Eagle	356	356	356	356	356	356
Hunt Mountain	1,231	2,529	0	2,529	2,529	2,529

Name	No Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Sheep Mountain	5,289	5,289	5,289	5,289	5,289	5,289
Oregon Trail	1,901	1,901	1,901	1,901	1,901	1,901
Homestead	8,750	8,750	8,750	8,750	8,750	8,750
South Fork of the Walla Walla River	2,040	2,040	2,040	2,040	2,040	2,040
Total Retained ACECs	48,153	48,770	46,241	48,770	48,770	48,770
New ACEC Acres						
Keating Riparian • Clover Creek ACEC	0	-681	-681	-681	-681	-681
Hunt Mountain	0	+1298	0	+1298	+1298	+1298
Magpie	0	574	0	574	574	574
Denny Flat	0	3977	0	0	3977	3,977
Virtue Flat	0	42,022	0	0	42,022	42,022
Snake River Goldenweed RNA	0	235	0	235	235	235
Total New ACEC Acres	0	47,425	-681	1,426	47,425	47,425
TOTAL ACEC Acres	48,153	95,578	46,241	49,579	95,578	95,578

The number and acres of RNAs by alternative are summarized in Table 4-13. Acres or RNAs are included within the ACEC acres.

Name	No Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Retained RNA Acres						
Keating Riparian • Clover Creek RNA	26.6	0	0	0	0	0
Keating Riparian • Balm Creek RNA	26.6	155	155	155	155	155
Keating Riparian • Sawmill Creek RNA	26.6	210	210	210	210	210
Total Retained RNA Acres	80	365	365	365	365	365
New RNA Acres						
Grand Ronde River • Lime Hill RNA	0	1,572	1,572	1,572	1,572	1,572
Grande Ronde River • Mt. Wilson RNA	0	238	238	238	238	238
Magpie RNA	0	574	0	574	574	574
Denny Flat RNA	0	0	0	0	3977	3977
Snake River Goldenweed RNA	0	235	0	235	235	235
Total New RNA Acres	0	2,619	1,810	2,619	6596	6596
TOTAL RNA Acres	80	2,984	2,175	2,984	6961	6961

ACEC and RNA Methods and Assumptions

The BLM evaluated the currently designated ACECs to determine whether the relevant and important values were still present and whether the management actions were still appropriate. The BLM also considered new areas for potential ACECs and RNAs by evaluating whether relevant and important values were present and whether they required special management for protection. In some cases, the BLM received nominations for new RNAs and ACECs from outside agencies and individuals. These were also assessed.

The BLM designed specific management prescriptions to protect and preserve relevant and important values for which the ACECs/RNAs would be designated. Such management prescriptions would preempt the management actions of other resource programs as necessary to assure the continuation of the values for which the designation was established. There are some management actions common to all alternatives for all ACECs and RNAs (see Chapter 2, Table 2.25, MA 1-14). These are management actions designed to protect the wide variety of relevant and important values found in the ACECs and RNAs.

The management actions of other resource programs would generally not impact ACECs and RNAs because of the specific management actions proposed under the alternatives to protect relevant and important values. It is thus assumed that if a new ACEC and/or RNA is designated or an existing designation retained, relevant and important values of that ACEC and/or RNA would be protected. On the other hand, if relevant and important values are known to occur but the public land parcel does not receive special protection through ACEC and/or RNA designation, the relevant and important values could be impacted from actions proposed under the other resource management programs.

Magnitude of Impacts to ACECs and RNAs

Impacts are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described in qualitative terms, if appropriate.

Generally, the same management actions would apply to all designated ACECs and RNAs between alternatives. However, there are some exceptions. Where different management actions are applied for different alternatives, the magnitude of impacts is discussed based on the ability of the actions to preserve the relevant and important values over the life of this RMP.

The magnitude of impacts are described, where possible, using the following guidance:

Negligible: Relevant and important values would not be appreciably affected by other resource management activities. Relevant and important values meeting the criteria for ACEC and or RNA designation would be adequately protected and thus be maintained or improved and the designation would remain warranted.

Minor: Impacts to relevant and important values meeting the criteria for ACEC and or RNA designation would be small but detectable. Relevant and important values

would be slightly compromised or improved, but the ACEC designation would still be warranted.

Moderate: Impacts to relevant and important values meeting the criteria for ACEC and/or RNA designation would be readily apparent. Relevant and important values would be compromised or improved. The ACEC designation would remain warranted but its values would be degraded when the impacts are negative. When the impacts are positive, values would be maintained or improved over the life of the RMP.

Major: Impacts to the relevant and important values meeting the criteria for ACEC and/or RNA designation would result in obvious changes to the values and their contribution to the ecological systems. Negative major impacts would diminish the relevant and important values to the extent that they could not be recovered and the designation would longer be warranted. Positive major impacts would enhance the relevant and important values and improve ecosystem complexity, diversity and sustainability. New values may become present over the life of the RMP as a result of the management actions.

b. Impacts to ACECs/RNAs

This section identifies impacts to ACECs/RNAs within the Decision Area. Specific impacts to various resources or resource uses that result from the designation of ACECs are discussed under those specific resource management programs. Once designated and the management actions are implemented, ACECs would not be affected by the management actions of other resource programs. Following this, impacts to ACECs in the Decision Area would primarily result from whether ACEC management actions are implemented or not.

Based on the above explanation, impacts to ACECs in the Decision Area would result from actions proposed under the following resource management programs:

- ACECs/RNAs

No Action Alternative

Impacts from ACECs/RNAs

The No Action Alternative would result in retention of ten currently designated ACECs totaling 48,153 acres, which include 3 RNAs totaling 80 acres and 1 ONA totaling 3,497 acres.

Generally, management actions under this alternative have been sufficient to assure protection of relevant and important values of the designated ACECs up to the present. However, some protection measures (e.g., grazing restrictions, mineral withdrawal, and fence maintenance) identified in the current Baker RMP (BLM 1989) were not implemented and led to the loss of relevant and important values. This is the case with Clover Creek within the Keating ACEC. Evaluations showed the relevant and important values previously found in Clover Creek ACEC/RNA, no longer exist because the riparian and upland vegetation is in poor condition due

to grazing. However, implementation of the management actions in the No Action Alternative could allow such riparian values to recover in the long term. Hunt Mountain ACEC acreage mapped in the current Baker RMP (BLM 1989) totaled 2,230 incorrectly. This was probably due to lack of ground truthing of the boundary. Boundaries have now been accurately identified which show actual acreage to be 1,231.

All ACEC and RNA acreage in the No Action alternative have been corrected from those in the current Baker RMP (BLM 1989) because new GIS figures provide a more accurate tally. Land acquisitions have increased the size of two of the existing ACECs, Grande Ronde and South Fork Walla Walla.

Other changes in ACEC relevant and important values have occurred since the current Baker RMP (BLM 1989) was signed. Such changes include listing of additional species under the ESA since the ACECs were originally designated and recently identified location of certain special status plant and animal species. In addition, impacts to relevant and important values have occurred from increased or new forms of resource uses such as wind-energy development and specialized recreation. The ACECs so affected include Joseph Creek, Grande Ronde, South Fork Walla Walla, and Hunt Mountain ACECs.

Existing ACECs

Joseph Creek ONA/ACEC: The current Baker RMP (BLM 1989) designation of this area as an ACEC/ONA would be retained. Current management actions would be carried forward to protect relevant and important values for which the ACEC was originally designated. Management of Joseph Creek ONA/ACEC under the No Action Alternative would protect natural riparian plant communities, wildlife habitat, high scenic qualities, and outstanding geologic system values on designated public lands along Joseph Creek.

Additional relevant and important values have been identified for Joseph Creek ONA/ACEC. These include federally listed fish species (steelhead trout) and their habitat and Nez Perce land acquisition adjacent to the ACEC. Although these relevant and importance values are not specifically identified under the No Action Alternative, management actions currently in place would adequately protect these values. Negative impacts would be negligible for both the short and long term. Positive impacts would be moderate due to continued protection and management of potential conflicting actions in both the short and long term.

Grande Ronde ACEC: The No Action Alternative would continue to protect the critical riparian habitat; ESA listed fish habitat; WSR designation values; Goose Necks National Natural Landmark geologic features; and the areas unique, natural, scenic, ecologic, geologic and cultural resource values. Land acquisitions (some with Land and Water Conservation Funds [LWCF] and some through exchange) within the ACEC added to the public ownership. The acquisition decisions indicated the new lands would not be authorized for livestock grazing until analyzed in the RMP. This Alternative would continue the non use for livestock grazing on

these acquired lands. This would insure ACEC relevant and important values would be maintained.

Management actions are considered adequate under this alternative to protect relevant and important values for which the ACEC was originally designated. Negative impacts would be negligible for both the short and long term. Positive impacts would be moderate to major due to continued protection and management of potential conflicting actions in both the short and long term.

Additional relevant and important values have been identified for the Grande Ronde ACEC, specifically, three fish species and their habitats were federally listed under the ESA. These species include the Chinook salmon, steelhead trout, and bull trout. In addition, 18 special status plant species, 2 special status mollusk species, and 7 special status lichen species were identified on Lime Hill and Mount Wilson. Although federally listed species are not specifically identified under the No Action Alternative as important values of the ACEC, the BLM policy would require consultation, protection, and management of those species under the No Action Alternative. Any activities on public lands that could affect federally listed fish or other special status species would require NEPA analysis, involving consultation and mitigation to protect the species. Overall, negative impacts to the newly identified special status species would thus be negligible in both the short and long term under this alternative. Positive impacts would be moderate to major due to continued protection and management of potential conflicting actions in both the short and long term.

The No Action Alternative would not initiate designation of two proposed RNAs within the Grande Ronde ACEC aimed at providing special management and protecting special status plant species and the Hells Canyon mountain snail on Lime Hill and Mount Wilson. Because these areas would not receive additional specific management protections for these species, there is a chance that such values could diminish in the long term. For instance, the lack of RNA status would decrease the chance for the area to be monitored in light of its remote location. This could result in increased impacts from livestock grazing, use of motorized vehicles, camping, and encroachment of the gravel pit on Cusick's monkey flower (one of the special status plants).

Under the No Action Alternative, Lime Hill and Mount Wilson would remain within the Grande Ronde ACEC but would not be designated as RNAs. Bureau of Land Management policy would offer some protection for special status plants, the mountain snail, and the lichens. This includes site-specific NEPA analysis and implementation of any necessary mitigation measures for any activities on public lands that may impact these species. Negative impacts to the special status plants, snail, and lichens could be minor to moderate in the long term.

Keating Riparian RNA/ACEC: The No Action Alternative would retain the existing Keating Riparian ACEC as well as the Sawmill, Balm, and Clover Creek RNAs. Although the BLM identified that the relevant and important values of Clover Creek RNA no longer existed, implementation of the No Action Alternative could allow such riparian values to recover.

Riparian values in Balm Creek RNA and Sawmill Creek RNA would continue to be protected under the No Action Alternative. Grazing would not be allowed in the RNAs, which would provide protection of identified riparian values. Grazing would continue in the remaining portions of the ACEC and this could contribute to the degradation of the relevant and important values unless close monitoring occurs and fencing was installed. Mineral exploration and development could impact the relevant and important values. This area was shown to have historic mineral exploration in the current Baker RMP (BLM 1989). This alternative would not withdraw the area from mineral entry. Energy development and land use authorizations could potentially impact ACEC values because no specific restrictions would apply to such use under the No Action Alternative. However, site-specific NEPA analysis would be required for energy and mineral development activities, which could minimize impacts. Overall, negative impacts to the relevant and important values would be negligible in the short term, and negligible to possibly minor in the long term. Positive impacts to the RNA and ACEC values would be minor in both short and long term.

Powder River Canyon ACEC: The No Action Alternative would continue to protect raptor and wildlife habitats and cultural resources and maintain scenic qualities while allowing for compatible recreational uses on 5,906 acres of public lands along the Powder River. All actions would also be compliant with the Powder River WSR Management Plan (BLM 1994). While the No Action Alternative does not include specific language limiting new hydropower development, such activities would be inconsistent with the WSR designation (Section 1278) and thus prohibited. Negative impacts would be negligible in both the short and long term. Positive impacts to the relevant and important values would be moderate in both the short and long term.

Unity Bald Eagle ACEC: The No Action Alternative would continue to protect 356 acres of bald eagle habitat on the North Fork of Burnt River. Management of these lands would also be guided by the BLM and USFS joint BEMP (USFS 1985). These management actions would protect the relevant and important values for which the ACEC was originally designated. Negative impacts would thus be negligible in both the short and long term. Positive impacts to the relevant and important values would be minor in both the short and long term.

Hunt Mountain ACEC: The No Action Alternative would continue to protect and maintain habitat for big game (including mountain goats) and sensitive plant species on Hunt Mountain. Hunt Mountain ACEC acres were identified in the current Baker RMP (BLM 1989) as 2,230; however, the mapped location of these acres only included 1,231 acres. There are ACEC relevant and important values on an additional 1,298 acres that are not currently designated. These relevant and important values would not be protected under the No Action Alternative. Forest treatment, road construction, and mineral development could threaten the relevant and important values on the additional 1,298 acres. While this area is not proposed for mineral withdrawal in the current Baker RMP (BLM 1989), there are potential impacts from mineral exploration and development. Additional special status plant species, the area's unique subalpine habitat, and potential habitat for federally listed salmonids were recently identified as additional relevant and important values contained in the Hunt Mountain ACEC. While these values are not specifically

identified under the No Action Alternative, they would be protected by the management actions that would continue under the No Action Alternative, as well as site-specific analysis required by NEPA and the ESA. Negative impacts within the currently designated 1,231 acres would be negligible and positive impacts would be moderate. Negative impacts to the relevant and important values on the undesignated 1,298 acres could be moderate in the long term due to the potential for mineral exploration and development, possible livestock grazing, and forest treatment.

Oregon Trail ACEC: The No Action Alternative would continue the current protection for relevant and important values. The ACEC would also be protected by management prescriptions identified in the National Historic Oregon Trail Management Plan (1989), which also directly manages NHOTIC. The No Action Alternative and management plan would continue to protect the unique historic resource and visual qualities of the of the Oregon National Historic Trail remnants found on seven parcels (1,901 acres) of public lands. A mineral withdrawal was established in 1991 for 508 acres associated with NHOTIC. The Echo Meadows and White Swan parcels were not withdrawn for mineral entry. The 1989 historic mineral activity map indicated previous exploration on or near the Flagstaff Hill tract and the White Swan tract, but not the Echo Meadows tract. It is thus unlikely that mineral exploration or development would occur on the Echo Meadows tract. If mineral exploration or development were to occur on the White Swan tract, there would be adverse, minor to moderate impacts to the relevant and important values in the short and long term.

Under the No Action Alternative, energy development would not be restricted within the ACEC. If energy development were to occur, it would affect the relevant and important values. Negative impacts to relevant and important values would be minor in the long term.

Sheep Mountain ACEC: The No Action Alternative would continue to protect 5,289 acres of outstanding scenic qualities on Sheep Mountain, and maintain or improve wildlife and crucial bald eagle winter habitat. Management actions under this alternative would protect these resource values. Negative impacts would be negligible in both the short and long term. Positive impacts would be moderate for the short and long term.

Homestead ACEC: The No Action Alternative would continue to protect the 8,750 acres of outstanding scenic qualities, as well as wildlife, bald eagle, and sensitive plant habitats. Management actions under this alternative would be adequate to protect these resource values. Negative impacts would be negligible in both the short and long term. Positive impacts would be moderate for the short and long term.

South Fork Walla Walla ACEC: The No Action Alternative would continue to protect 2,040 acres with the relevant and important values of fisheries, wildlife, riparian, and scenic values found along the South Fork Walla Walla River. The South Fork of the Walla Walla River ACEC Plan Amendment (BLM 1992), various EAs, and ESA consultations also provide direction for management of the ACEC. This management would protect the relevant and important values

originally identified. Current management actions, including ESA consultations, would also protect listed salmonids and support tribally reintroduced salmon (which were later determined to be relevant and important ACEC values).

Negative impacts would be negligible in both the short and long term. Positive impacts for the relevant and important values would be moderate to major over the short and long term.

Proposed ACECs and RNAs

Denny Flat, Virtue Flat, Magpie Peak, and Snake River Goldenweed ACECs and Lime Hill and Mount Wilson RNAs: No new ACECs/RNAs would be designated under the No Action Alternative. See discussion below under Alternative 1 on proposed ACECs and/or RNAs for a summary of the potential ACECs/RNAs and the relevant and important values they contain. Under the No Action Alternative, these relevant and important values would retain their integrity in the short term; however, there is a possibility that their relevant and important values would be compromised and even lost in the long term without designation and focused management. Not designating these ACECs would lead to potential impacts to the associated relevant and important values from grazing, recreation use, habitat loss, land use authorizations, mineral development, surface occupancy, and road construction.

Alternative 1

Alternative 1 would retain designation of the ten existing ACECs and designate four new ACECs. Two existing RNAs and four new RNAs, totaling 2,984 acres, would also be designated within the ACECs (see Table 4-13). Alternative 1 would designate 14 ACECs totaling 95,578 acres, which would be an additional 47,425 acres under ACEC protection when compared to the No Action Alternative. The majority of these proposed new acres (42,022) are for sage-grouse protection in the Virtue Flats area. Specific management actions for these designations would provide protection of their relevant and important values in both the short and long term. Mineral withdrawal would be pursued for those ACECs that overlap the areas with known historic mineral activity from the current Baker RMP (BLM 1989). This includes all 7 tracts of the Oregon Trail ACEC, 574 acres at Magpie Peak, 739 acres of Balm Creek, 13,795 acres of Virtue Flat, all of Hunt Mountain and the WSA portions of Sheep Mountain and Homestead ACECs. Land use authorizations and leasable mineral development would be excluded on all seven tracts of the Oregon Trail (except at the NHOTIC as needed), all of Virtue Flat, and the WSA portions of Sheep Mountain and Homestead ACECs. The remaining ACECs would be identified as avoidance areas for land use authorizations and leasable mineral development and would require mitigations to ensure protection of ACEC values. Implementation of these measures would be expected to have negligible negative impacts and moderate positive impacts to the relevant and important values for the short and long term.

Existing ACECs and RNAs

Joseph Creek ONA/ACEC: Management actions would continue under Alternative 1 and would protect the natural riparian plant communities, wildlife habitat, high scenic qualities, and outstanding geologic systems found along Joseph Creek. Impacts to these relevant and important values would be the same as identified under the No Action Alternative. In addition, Alternative 1 identifies ESA listed species and habitats and Nez Perce land acquisition adjacent to the ACEC as relevant and important values requiring added protection. The BLM would provide added protection while recognizing and managing specifically for these values. As a result, overall impacts would be similar to the No Action Alternative. The overall acreage within the ACEC would increase by 137 acres from those acres identified as ACEC in the current Baker RMP (BLM 1989) under Alternative 1; however, this increase is due to improved mapping techniques and is not an increase in the actual boundary of the ACEC. Energy development would be restricted to those activities that do not impact the relevant and important values. Under Alternative 1, hydropower would be restricted to protect fish passage, riparian values, and other relevant and important values. Negative impacts to the relevant and important values would be negligible for the long and short term. Positive impacts would be moderate to major.

Grande Ronde ACEC and RNAs: The ACEC boundary would be the same for Alternative 1 and under the No Action Alternative. Management Actions under Alternative 1 would protect the critical riparian habitat; ESA-listed fish and habitat and associated WSR designation values; Goose Necks National Natural Landmark geologic features; and the areas unique, natural, scenic, ecologic, geologic and cultural resource values. Relevant and important listed fish values would be acknowledged under this Alternative. Impacts to these relevant and important values would be the same as identified under the No Action Alternative (i.e., these relevant and important values would be maintained). Land acquisitions (some through LWCF and some through exchange) have added to the ACEC (7,245 acres) since implementation of the current Baker RMP (BLM 1989), which authorized inclusion of these lands into the existing ACEC. The acquisition decisions indicated the new lands would not be authorized for livestock grazing until analyzed in the RMP. Alternative 1 would continue the nonuse for livestock grazing on these acquired lands unless grazing was needed to achieve specific ACEC objectives. This would insure ACEC relevant and important values are maintained.

Impacts from land acquisitions and potential grazing of these lands would allow for the use of livestock grazing to meet ACEC objectives. Grazing leases would not be issued for the lands as they would be used only intermittently, as needed to meet objectives. This is different than the No Action Alternative which would keep the area closed to grazing. Negative impacts from using grazing as a tool would be minor under Alternative 1.

Alternative 1 would recognize special status plant species, snail species, and lichen species as relevant and important values in the Grande Ronde ACEC. This would ensure added management of these species through the designation of two new RNAs within the Grande Ronde ACEC.

Lime Hill RNA (1,572 acres) would protect the abundance of special status plants known to occur in the area, while Mount Wilson RNA (238 acres) would protect the only documented occurrence of Engelmann's daisy in Washington as well as other special status plants for Washington. Recognizing special status plants as an important resource value in the ACECs and managing their primary concentrations as RNAs would adequately protect such values. The Interagency Strategy for the Pacific Northwest Natural Areas Network (2009) calls for agencies to "ensure that regional ecosystems and any associated rare species are represented in the natural areas network over the long term."

Energy development would be restricted to those activities that do not impact the relevant and important values. Hydropower would not be authorized within the WSR portion of the Grande Ronde River (section 1278 of the WSR Act). This would protect fish passage and riparian values in this portion of the river. Hydropower would be restricted in the portion of the river not designated under the WSR Act (downstream from the Washington State border) to ensure protection of the relevant and important values of the ACEC.

Negative impacts to the relevant and important values would be negligible for the short and long term. Positive impacts would be moderate to major for the short and long term due to the added management actions that would be implemented for the RNAs.

Keating Riparian RNA/ACEC: Alternative 1 would modify the existing Keating Riparian ACEC to remove Clover Creek (681 acres) ACEC and RNA and expand the acreage for Sawmill RNA to protect a more logical unit size. No grazing or OHV travel would be allowed in the RNA at Balm Creek. Sawmill RNA grazing would be changed to enhance the riparian values and monitored closely to insure values are protected. If the new grazing management scheme for the RNA does not enhance the riparian values, then management would change and grazing would be eliminated. Grazing management would not change for the remaining acres (outside of the RNAs) within the ACEC. Balm Creek RNA (155 acres) and Sawmill RNA (210 acres) would continue to be designated. Impacts from OHV and grazing restrictions would be the same as identified under the No Action Alternative. Energy development would be restricted to prevent ACEC values from impacts by such activities. Under Alternative 1, negative impacts to the relevant and important values would be negligible and positive impacts would be moderate to major over the short and long term.

Powder River Canyon ACEC: Alternative 1 would protect the same relevant and important values within the Powder River Canyon ACEC as identified under the No Action Alternative (5,906 acres). Similarly, all actions would be compliant with the Powder River WSR Management Plan. Hydropower development is prohibited in WSRs according to the Wild WSR Act, Section 1278. Alternative 1 also would restrict other new energy development to assure protection of the relevant and important values. Overall impacts resulting from implementation of Alternative 1 to the Powder River Canyon ACEC would be negligible in both the short and long term. Under Alternative 1, negative impacts to the relevant and important values would be negligible and positive impacts would be moderate to major for the short and long term.

Unity Bald Eagle ACEC: Overall impacts would be the similar to those identified under the No Action Alternative, although there would be a slight adjustment in ACEC acres (356 acres) as a result of improved mapping techniques. Under Alternative 1, negative impacts to the relevant and important values would be negligible and positive impacts would be moderate for the short and long term.

Hunt Mountain ACEC: Alternative 1 would continue the current protection for relevant and important values found in the ACEC. They include sensitive plant species identified by the Oregon Biodiversity Information Center (which previously went by the name of the Oregon Natural Heritage Program [ONHP]) and to protect unique subalpine habitat and mountain goat habitat.

Alternative 1 would increase the size of the ACEC by 1,298 acres to protect the high elevation habitats with the same relevant and important values as the 1,231 acres originally mapped for the current Baker RMP (BLM 1989). Although these acres were not delineated on the current Baker RMP (BLM 1989) maps, they do contain the values and would be impacted if not protected as an ACEC. Alternative 1 would also provide added protection to plant species identified by the State Director's Special Status Species list, the area's unique subalpine habitat, and potential habitat for ESA listed salmonids. Mineral withdrawal would be pursued for all lands within the Hunt Mountain ACEC to protect the relevant and important values from ground disturbance and development. Overall negative impacts to relevant and important values would be negligible in both the short and long term. Positive impacts under Alternative 1 would be moderate to major due to the application of the management actions to the additional acreage and the protection of the relevant and important values.

Oregon Trail ACEC: Impacts would be similar to those discussed under the No Action Alternative, with the exception that energy development would be restricted to assure protection of ACEC values, which would provide added protection to those values. Ten additional acres at the Flagstaff Hill parcel would be identified for withdrawal from mineral entry, and withdrawal from mineral entry would be pursued for all acres within the ACEC. Negative impacts to relevant and important values would be negligible and positive impacts would be moderate in both the short and long term.

Sheep Mountain ACEC: Alternative 1 would continue the current protection for relevant and important values in Sheep Mountain ACEC (5,289 acres). Impacts would be similar to those identified under the No Action Alternative. Some additional protection measures proposed under Alternative 1 (e.g., those relating energy development restrictions, noxious weed control, fire management, and mineral withdrawal for lands within the WSA) would provide added protection to the ACEC's values. Negative impacts to relevant and important values would be negligible and positive impacts would be moderate in both the short and long term.

Homestead ACEC: Alternative 1 would continue the current protection for relevant and important values found in the Homestead ACEC (8,750 acres). Impacts would be similar to

those identified under the No Action Alternative. Some additional protection measures proposed under Alternative 1 (e.g., those relating energy development restrictions, noxious weed control, fire management, and mineral withdrawal for lands within the WSA) would provide extra protection to the ACEC's values. Negative impacts to relevant and important values would be negligible and positive impacts would be moderate in both the short and long term.

South Fork Walla Walla ACEC: Overall impacts to identified relevant and importance values would be similar to those identified under the No Action Alternative, with two exceptions: 1) specific management actions would provide support for tribal interests for reintroduced salmon, and 2) chemical treatments would need to be evaluated to prevent loss of ladybug wintering areas. Implementation of Alternative 1 would result in negligible negative impacts to the relevant and important values and moderate to major positive impacts in both the short and long term.

Proposed ACECs and/or RNAs

Four proposed ACECs/RNAs would be designated under Alternative 1. Such designations would ensure the protection of the relevant and important values for which they are designated. Without designation, relevant and important values would be at risk of being changed through management actions and lack of management protection. The Interagency Strategy for the Pacific Northwest Natural Areas Network (2009) calls for agencies to "ensure that regional ecosystems and any associated rare species are represented in the natural areas network over the long term." It also directs agencies to "[add] remaining missing ecosystems and species listed in current state heritage plans to the natural areas network." Alternative 1 would contribute to this strategy.

Magpie Peak ACEC/RNA: Alternative 1 would designate 574 acres near Magpie Peak as an RNA/ACEC to protect the Oregon Natural Heritage ecological cell described as valley margin shrubland/grassland with big sagebrush, three-tip sagebrush, and bunchgrasses. Specific management for this ACEC/RNA includes adjusting livestock grazing if resource values are determined altered by the current or future grazing use. Recognition and protection of this ecologic cell would provide an important representative site for the Oregon Biodiversity Information Center not previously available. Research would also be allowed on this site. There are 24 acres (SE1/4 of SE ¼ Section 27 T 7 S R 40 E) located on the southeast corner of the ACEC/RNA that BLM owns but has no subsurface rights for minerals. Alternative 1 recommends pursuit of these acres for subsurface minerals. If acquired, they would also be included within the RNA/ACEC. These acres currently contain relevant and important values and, if left undisturbed, would meet RNA values. The addition of this cell to the Pacific Northwest Natural Area Network would provide a currently unfilled cell. The designation would result in no negative impacts and moderate to major positive impacts to the relevant and important values for the short and long term.

Denny Flat ACEC: Alternative 1 would designate 3,977 acres of Denny Flat as an ACEC to protect the rare plant, *Lupinus lepidus var. cusickii* (its only known global population), sage-

grouse habitat, and easily erodible soils. Designation of this site would protect the only known location of this plant, reduce impacts to sage-grouse habitat, and reduce impacts to the fragile soil types on which the plant occurs. Grazing and OHV use would be managed and monitored to protect the ACECs' relevant and important values. If impacts are discovered from grazing and/or OHV use, then changes to management would be implemented. This could have negligible adverse impacts to the relevant and important values in the short term during the transition time. The designation would result in no adverse long-term impacts and moderate to major beneficial impacts to the relevant and important values for the short and long term.

Virtue Flat ACEC: Alternative 1 would designate 42,022 acres in Virtue Flat to protect sage-grouse habitat and the Wyoming big sagebrush ecosystem. Within the proposed ACEC, over 80 percent of sage-grouse habitat would be protected. Designation would limit OHV use expansion into important sage-grouse use areas and reduce disturbance during the breeding season through timing and seasonal restrictions for use and education of users. Designation would also limit energy development disturbances into the habitat. Alternative 1 would pursue mineral withdrawal on 13,795 acres identified in the current Baker RMP (BLM 1989) as an area with known historic mining activity. Land use authorizations and leasable mineral development would be excluded for all acres within the ACEC. The designation would result in no adverse impacts and moderate to major beneficial impacts to the relevant and important values in the short and long term.

Snake River Goldenweed ACEC/RNA: Alternative 1 would designate 235 acres to protect a representative sample of Snake River Goldenweed habitat from degradation. This regional endemic's global distribution is limited to northern Malheur and Baker counties in Oregon and Washington County in Idaho. This species is listed as endangered by the state of Oregon and a species of concern for the USFWS. Special management actions would ensure a population of the species and habitat. Management actions from the designation would limit energy development and exclude grazing and disturbances in the representative population. These protections would result in preservation of a representative population of Snake River Goldenweed. The designation would result in no adverse impacts and moderate to major beneficial impacts to the relevant and important values identified here for the short and long term.

Alternative 2

Impacts from ACEC and/or RNA designation

Alternative 2 would retain the designation of nine existing ACECs totaling 46,241 acres, which would be a reduction of 1,912 acres when compared to the No Action Alternative. No new ACECs would be designated under this alternative and the existing Hunt Mountain ACEC would no longer be designated. Alternative 2 would retain two existing RNAs and manage two additional RNAs, which would total 2,175 acres, an increase of 1,820 RNA acres from the No Action Alternative (see Table 4-13). Specific management actions for these designations would provide protection of their relevant and important values in both the short and long term.

Management actions under Alternative 2 are different in the Grande Ronde with regard to grazing authorization for acquired lands. Mineral withdrawals would not be pursued for any lands within the ACECs except the existing withdrawal at NHOTIC (508 acres). Land use authorizations and leasable minerals would not be excluded except for the Oregon Trail ACEC and the WSA portions of Sheep Mountain and Homestead.

Existing ACECs and/or RNAs

Joseph Creek, Keating Riparian (including Balm and Sawmill Creek RNAs), Powder River Canyon, Unity Bald Eagle, Oregon Trail, Sheep Mountain, Homestead, and South Fork Walla Walla ACECs: Impacts would be the same as those described under Alternative 1.

Grande Ronde ACEC: Overall impacts to relevant and important values would be similar to those identified under Alternative 1, except for those due to grazing on the acquired lands and hydropower potential development in the Washington portion of the river. Alternative 2 would allow for the establishment of new livestock grazing leases on recently acquired lands and continue permitting grazing on existing leases. Livestock grazing could diminish the integrity of relevant and important values, but would be monitored to determine if impacts are occurring. If so, adjustments in grazing would be made to protect the relevant and important values. Hydropower could be proposed on the Washington section of the Grande Ronde River, but would require restrictions to protect the relevant and important ACEC values. Hydropower development of any kind would compromise the relevant and important values. Negative impacts to the relevant and important values would be minor to moderate due to the delay from monitoring results to implementation of management changes in the short and long term. Positive impacts would be minor in the short term and moderate in the long term.

Hunt Mountain ACEC: By removing the ACEC designation, Alternative 2 would eliminate the specific protection of relevant and important values found on Hunt Mountain. Lifting specific restrictions on livestock grazing, travel and transportation, mineral development, surface occupancy, land use authorizations, and timber harvest could result in the loss of identified relevant and important values (see Section B.9 Special Status Species [Plants] for more details). Special status plants and animals would be protected regardless of ACEC designation. Potentially, the special status plants and wildlife habitat and unique subalpine community found there would be subject to mitigation actions needed as management actions such as forest management, mineral development, surface occupancy, land use authorizations, road construction, grazing, and/or recreation use might occur. However, the relevant and important ACEC values would lose focused protection and be more vulnerable to impacts in the long term. Negative impacts to relevant and important values would be minor in the short term and could be moderate to major in the long term. The additional acreage with relevant and important values would also not be protected and could expect long term minor to moderate negative impacts.

Proposed ACECs and RNAs

Denny Flat, Virtue Flat, Magpie Peak, and Snake River Goldenweed ACECs: Impacts would be the same as identified under the No Action Alternative.

Lime Hill and Mount Wilson RNAs: Impacts would be the same as identified under Alternative 1.

*Alternative 3*Impacts from ACECs and RNAs

Alternative 3 would designate 12 ACECs totaling 49,579 acres, which would be an additional 1,426 acres under ACEC protection when compared to the No Action Alternative. Alternative 3 would retain designation of the ten existing ACECs and designate two new ACECs. Two existing RNAs and four new RNAs totaling 2,994 acres would also be managed within the ACECs (Table 4-13). Specific management actions for these designations would provide protection of their relevant and important values in both the short and long term. The Virtue Flat and Denny Flat areas would not be designated in Alternative 3.

Mineral withdrawal would be pursued for those ACECs that overlap the areas with known historic mineral activity from the current Baker RMP (BLM 1989). This includes 2 tracts of the Oregon Trail ACEC (NHOTIC and White Swan), Magpie Peak, 739 acres of Balm Creek, all of Hunt Mountain, and the WSA portions of Sheep Mountain and Homestead ACECs. Land use authorizations and leasable mineral development would be excluded on all seven tracts of the Oregon Trail ACEC (except at the NHOTIC as needed) and the WSA portions of Sheep Mountain and Homestead ACECs. The remaining ACECs would be identified as an avoidance area for land use authorizations and leasable mineral development and would require mitigations to ensure protection of ACEC values. Implementation of these measures would be expected to have minor to negligible negative impacts and minor to moderate positive impacts to the relevant and important values.

Existing ACECs and RNAs

Joseph Creek, Grande Ronde River, Keating Riparian (including Balm and Sawmill Creek RNAs), Powder River Canyon, Unity Bald Eagle, Hunt Mountain, Oregon Trail, Sheep Mountain, Homestead, and South Fork Walla Walla ACECs: Impacts would be the same as identified under Alternative 1.

Proposed ACECs and RNAs

Magpie Peak and Snake River Goldenweed RNA/ACECs and Lime Hill and Mount Wilson RNAs: Impacts would be the same as identified under Alternative 1

Denny Flat and Virtue Flat ACECs: Impacts from not designating these areas would be the same as identified under the No Action Alternative and Alternative 2.

Alternative 4

Impacts from ACECs and RNAs

Alternative 4 would designate 14 ACECs totaling 95,578 acres, which is 47,425 more acres than the No Action Alternative. Alternative 4 would retain the ten existing ACECs and designate four new ACECs. Two existing RNAs and five new RNAs totaling 6,961 acres would also be managed within the ACECs (see Table 4-13). Specific management actions for these designations would provide adequate protection of the relevant and important values in both the short and long term.

Mineral withdrawal would be pursued for those ACECs that overlap the areas with known historic mineral activity from the current Baker RMP (BLM 1989). This includes all seven tracts of the Oregon Trail ACEC, Magpie Peak, 739 acres of Balm Creek, 13,795 acres of Virtue Flat, all of Hunt Mountain, and the WSA portions of Sheep Mountain and Homestead ACECs. Land use authorizations and leasable mineral development would be excluded on all seven tracts of the Oregon Trail (except at the NHOTIC as needed) ACEC, all of Virtue Flat, Denny Flat, and the WSA portions of Sheep Mountain and Homestead ACECs, which would ensure non-disturbance of the relevant and important values. The remaining ACECs would be identified as an avoidance area for land use authorizations and leasable mineral development and would require mitigations to ensure protection of ACEC values.

Existing ACECs and RNAs

Joseph Creek, Grande Ronde River, Keating Riparian (including Balm and Sawmill Creek RNAs), Powder River Canyon, Unity Bald Eagle, Hunt Mountain, Oregon Trail, Sheep Mountain, Homestead, and South Fork of the Walla Walla River ACECs: Impacts would be the same as described under Alternative 1.

Proposed ACECs and RNAs

Magpie Peak, and Snake River Goldenweed RNA/ACECs and Lime Hill and Mount Wilson RNAs: Impacts would be the same as described under Alternative 1.

Virtue Flat ACEC: Alternative 4 would require vehicle closure for all BLM managed roads and trails in the Virtue Flat ACEC. County and private roads would not be affected. Beneficial impacts from this action would be moderate to major for sage-grouse because there would be fewer disturbances from vehicles and sage-grouse habitat during the critical life stages. No adverse impacts to sage-grouse would be expected from this alternative.

Denny Flat ACEC: This ACEC would be managed as an RNA under Alternative 4. Management actions would be the same as in Alternative 1, but if impacts to the special status plant are identified, then management changes would occur immediately. Additional research on the rare lupine would be encouraged and expected if this was designated as an RNA. Impacts to the lupine, erodible soils, and the sage-grouse would be beneficial.

Alternative 5

Impacts from ACECs and RNAs

Alternative 5 would designate 14 ACECs totaling 95578 acres and manage 7 RNAs (6961 acres) which is 47288 more acres than the No Action Alternative). Alternative 5 would retain the ten existing ACECs and designate four new ACECs. Two existing RNAs and five new RNAs totaling 6961 acres would also be managed within the ACECs (see Table 4-13). Specific management actions for these designations would provide adequate protection of the relevant and important values in both the short and long term. No grazing would occur in any of the ACECs/RNAs under Alternative 5a. While this would eliminate the need for monitoring grazing effects (except possibly for trespass grazing), it would also preclude the use of grazing as a tool for management. Alternative 5 would exclude all land use authorizations and leasable minerals from all designated ACECs. Alternative 5 would pursue mineral withdrawal for all lands designated as ACEC. This would eliminate the potential for impacts from these actions for the long term. Designation and management of these areas as prescribed in this Alternative would protect, enhance and preserve the relevant and important values for which they would be designated. Negative impacts from other resource management to the relevant and important values would be negligible for the long term for alternative 5. Positive impacts for the relevant and important values would be moderate to major for this alternative

Existing ACECs and RNAs

Joseph Creek, Grande Ronde River, Keating Riparian (including Balm and Sawmill Creek RNAs), Powder River Canyon, Unity Bald Eagle, Hunt Mountain, Oregon Trail, Sheep Mountain, Homestead, and South Fork of the Walla Walla River ACECs: With the exceptions noted above regarding no grazing, impacts would be the same as identified under Alternative 1.

Proposed ACECs and RNAs

Magpie Peak, and Snake River Goldenweed RNA/ACECs and Lime Hill and Mount Wilson RNAs: Impacts would be the same as described under Alternative 1.

c. Cumulative Impacts

No Action Alternative

Past and Present Actions on Public Lands

Past actions of implementing the current Baker RMP (BLM 1989) ACEC management decisions have led to mixed results regarding protection of relevant and important values found in the ACECs and RNAs. Management plans were to be prepared and implemented for each ACEC. This was done on the Oregon Trail, South Fork Walla Walla, Grande Ronde, and Powder Rivers ACECs. The completion and implementation of these management plans have led to reasonable protection of relevant and important values, as predicted by the current Baker RMP (BLM 1989). Some management actions identified in the current Baker RMP (BLM 1989) were implemented on the remaining ACECs, but the management plans were not prepared. This led to inconsistent implementation of the management actions. Some relevant and important resources were not managed consistent with the current Baker RMP (BLM 1989) and were lost, such as the Clover Creek ACEC/RNA riparian area within the Keating ACEC. Clover Creek ACEC/RNA is thus proposed to be dropped from within the ACEC boundaries for the Keating Riparian ACEC under the action alternatives, although the RNA designation would continue under the No Action Alternative. Future management action implementation could lead to recovery of the relevant and important values over the long term. The remaining ACECs designated in the current Baker RMP (BLM 1989) retain their relevant and important values due to implementation of the 1989 management actions.

Past and Present Actions on Other Lands

Past and present actions on lands adjacent to the ACECs have demonstrated an increase in resource use, such as grazing, energy development, and recreation use. Use of adjoining USFS lands near the Keating Riparian, Hunt Mountain, Homestead, Grande Ronde and South Fork Walla Walla ACECs has increased since implementation of the current Baker RMP (BLM 1989), with the assumption that this has followed on public lands within the ACECs.

Tribal management actions have affected Joseph Creek and South Fork Walla ACECs. The purchase and change in management for lands adjacent to Joseph Creek has been beneficial to management on nearby public lands within Joseph Creek ACEC. The reintroduction of Chinook salmon into the South Fork Walla Walla River by the Umatilla Tribe within the ACEC has added an additional relevant and important value. The need for the private land owners to have vehicular access to their lands adjacent to the South Fork Walla Walla has required more monitoring and adaptive management for the BLM to protect the relevant and important values.

The USFS travel and access management plan could affect relevant and important values on lands adjacent to the Keating Riparian (particularly Balm Creek), Hunt Mountain, Grande Ronde, Homestead, and South Fork Walla Walla ACECs. The Elkhorn Wind Farm was built on

private lands adjacent to the Powder River ACEC. Effects from this project are estimated to be minor for the relevant and important values found here.

Reasonable Foreseeable Future Actions on Public Lands

Energy development is expected as a reasonable foreseeable future action on public lands. The existing management actions offer limited to no protection from energy development for relevant and important values in the ACECs and RNAs. Those new relevant and important values found in the proposed ACECs and RNAs would not be protected because they are not designated in the No Action alternative. The No Action Alternative could thus lead to deterioration of relevant and important values from energy development because detailed management actions needed to protect the values from energy development are not found in the current Baker RMP (BLM 1989).

The proposed Boardman to Hemingway 500 KV powerline and other future power lines may travel through the Virtue Flat, Magpie Peak, and Snake River Goldenweed proposed ACECs, which would have moderate to major adverse effects to the relevant and important values found in the proposed Virtue Flat ACEC. Minor impacts would be expected from the proposed powerline to the relevant and important values within the Magpie Peak and Snake River Goldenweed proposed ACECs.

Identified relevant and important values in the proposed ACECs include special status plants and sage-grouse/sage-grouse habitat. The cumulative effect from the lack of ACEC/RNA designation and associated special management actions could result in loss of the particular habitat on public lands. It could also affect the continuation of the species of concern within the northeastern Oregon region. Species within the RNAs at Lime Hill, Mt Wilson, and Denny Flat are only found in those locations and could be reduced below viable levels. The non-designation of the Magpie Peak RNA/ACEC could result in no available ecological cell to fill for that habitat type in the Oregon Biodiversity Information Center. Non-designation of Virtue Flat and Denny Flat ACECs could result in the long-term loss of habitat for sage-grouse. The loss of these important habitats would contribute to the regional cumulative loss of sage-grouse habitats and populations, as well as those of Cusick's lupine. This could contribute to the need to list sage-grouse as an endangered or threatened species, and contribute to the reduction of the population level of Cusick's lupine to below viable levels.

Reasonable Foreseeable Future Actions on Other Lands

The trend for energy development, particularly wind, hydropower retrofitting of existing irrigation dams, and transmission lines has increased since implementation of the current Baker RMP (BLM 1989). Management protection measures identified under the No Action Alternative do not adequately protect relevant and important resource values on the non-designated areas and may not protect the designated areas. Energy development on private lands adjacent to ACECs would affect the relevant and important values (e.g., migratory birds, birds of prey, sage-grouse, and bats) at a moderate level.

Summary of Cumulative Impacts – No Action

The No Action Alternative provides reasonable protection from past risks for relevant and important values. However, cumulative effects from future actions in energy development could result in minor resource damage or loss due to inadequate protection measures from energy development. The No Action Alternative would not protect relevant and important values on the proposed ACECs and RNAs, which could lead to moderate resource damage to those values.

Alternative 1

Alternative 1 would build upon the protections planned for ACECs and/or RNAs identified under the No Action Alternative. It would define more specific management actions for each ACEC and RNA, thus authorizing immediate implementation for protection and building an additional base of protection measures for the updated information on relevant and important values. The new management actions would address potential threats to relevant and important values from grazing, fire suppression activities, and mineral and energy exploration and development. The cumulative effect of this approach would be to protect relevant and important values from known and potential resource development or use actions. Alternative 1 adds new acreage for ACECs and RNAs for protections to recently identified relevant and important values. This alternative also would protect Oregon Biodiversity Information Center ecological cells and Washington state sensitive plants as well as other important sensitive species habitat. These protected values all contribute to the ecological health and diversity of the northeast Oregon ecoregion.

Alternative 1 would continue protection of the existing ACECs and RNAs and designate additional protection for four new ACECs and four new RNAs with updated management actions to protect and enhance relevant and important values. Alternative 1 would be expected to provide moderate to major positive cumulative impacts.

Alternative 2

Compared to the No Action Alternative, Alternative 2 would reduce the protection of existing ACECs by 1,231 acres, which are currently designated as Hunt Mountain ACEC. It is reasonable to expect logging, mining, and road construction in on public lands on Hunt Mountain without the ACEC protections in place. Long-term changes in management on this area could reduce the presence of the special status plants and could result in road construction and/or timber harvest in the remote location. Cumulative effects of this loss would affect site-specific populations as well as adjacent populations managed by the neighboring USFS lands. This would result in long-term, moderate, adverse impacts. Actions could continue on adjacent or other non public lands, which could affect the areas with relevant and important values that are not designated. This could include increased recreation and OHV use, energy development, livestock grazing, fire suppression activities, and mineral exploration and development. The result would be long-term, minor, adverse impacts.

In some cases, management actions for designated existing ACECs would be different and could result in reduced protection of the relevant and important values. This is the case on the Grande Ronde ACEC on lands that were acquired since implementation of the current Baker RMP (BLM 1989). Under Alternative 2, these lands would be opened to livestock grazing and managed according to ACEC values. This could result in a degradation of the ACEC relevant and important values.

Management protection measures identified under Alternative 2 do not adequately protect resource values that are not designated as ACEC and/or RNAs. Cumulative effects from this could result in resource damage or loss due to inadequate protection measures from energy development. If hydropower were developed on any of the ACECs, then relevant and important values would be compromised because most values are associated with water-related resources (e.g., the stream or river channel, the associated riparian vegetation, and aquatic species present). Hydropower would inundate these areas to facilitate water impoundment, eliminating or limiting such important habitat areas.

Alternative 2 would not pursue withdrawal from mineral entry or restrictions from surface occupancy and land use authorization. The ground disturbance reasonably expected from mineral exploration and development would be expected to affect the special status and ESA listed species as well as other relevant and important values for which the ACECs and RNAs are designated. These actions would be mitigated to meet ESA and special status species requirements should development occur. This alternative would not prohibit ground disturbance and offsite impacts from erosion, road construction, and other actions in habitats with special status plants and riparian areas with ESA listed species of fish. This could result in the loss of Wyoming big sagebrush habitat for sage-grouse and scenic, cultural, and ecological values. Cumulative negative impacts to relevant and important values from implementing Alternative 2 would be minor to moderate

Alternative 3

Alternative 3 would not protect the relevant and important values on 45,999 acres identified within the new proposed ACECs and RNAs for Virtue Flat and Denny Flat. These are for special status plants and sage-grouse. The cumulative effect from non designation and no special management actions could result loss of the particular habitat at the BLM site, which could affect the continuation of the sage-grouse species within the northeastern Oregon region. It could also contribute to the need to list the species as a federally listed endangered or threatened species. Impacts to these sites would thus be similar to those that would occur under the No Action Alternative and Alternative 2. Overall, Alternative 3 would result in moderate, adverse, cumulative impacts for the relevant and important values found at Virtue Flat and Denny Flat.

Alternative 3 would maintain the current protections provided in the current Baker RMP (BLM 1989) and add protection for 809 acres of new areas at Magpie Peak (574) and the Snake River Goldenweed (235) sites. These sites contribute to the ONHP database for ecological cells and protect a representative population of this limited plant population. Overall, Alternative 3 would

result in minor to moderated beneficial, cumulative impacts for the continuing the existing ACECs and establishing the proposed ACEC/RNAs for Magpie Peak and Snake River Goldenweed.

Alternative 4

Alternative 4 would continue designation of all existing ACECs and all four of the proposed new ACECs. Alternative 4 would change management on the proposed ACECs and RNAs to enhance the relevant and important values and give maximum protection for all existing and proposed ACECs and RNAs from energy exploration and development, thus increasing protection of relevant and important values compared to the No Action Alternative.

Impacts to proposed ACECs would be similar to those identified under Alternative 1, except that there would be added protection due to the road closures at Virtue Flat. Such actions would have beneficial, long-term, cumulative impacts on relevant and important values. These added protections could contribute to the long term protection of sage-grouse habitats in Baker County and reduce the chance for loss of key sage-grouse habitat components. The designation of Denny Flat as an RNA would provide added protection and recognition of the values for research and contribution to the national network of ecological cells noted in the Oregon Biodiversity Information Center plan. Designation and management of this Virtue Flat and Denny Flat under Alternative 4 would protect, enhance, and preserve the relevant and important values for which the areas would be designated as ACECs/RNAs.

Overall, Alternative 4 would result in long term moderate to major positive effects for the relevant and important values found within existing and proposed ACECs and RNAs.

Alternative 5

Cumulative Impacts would be similar to those described under Alternative 4.

2. WILD AND SCENIC RIVERS

Sections of three designated WSRs flow across public lands in the Decision Area: the Grande Ronde, Wallowa, and Powder rivers. Specific river management plans have been written for these rivers that are directed at protecting their outstandingly remarkable values and free flowing nature (see BLM 1992, BLM 1994, and BLM et al. 1993). Management actions proposed in this Draft RMP abide by the direction provided in the river plans and would thus not threaten the outstandingly remarkable and free flowing qualities of the designated rivers. Unless specifically altered by the RMP revision, the river management plans for the Grande Ronde, Wallowa, and Powder rivers would remain in full force and in effect and will not be discussed further.

All of the public lands in the Planning Area found to meet the eligibility criteria and tentatively classified (i.e., wild, scenic, or recreational) were further reviewed to determine if they meet the

WSR suitability factors. Some factors considered in the suitability determinations included, but were not limited to:

- Factor 1:** Characteristics which do or do not make the public lands involved a worthy addition to the National WSR System.
- Factor 2:** Current status of landownership (including mineral ownership) and land and resource uses in the area, including the amount of private land involved, and any associated or incompatible land uses.
- Factor 3:** Reasonable foreseeable potential uses of the public lands involved and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National WSR System, and the values that may be foreclosed or diminished if the public lands are not protected as part of the National WSR System.
- Factor 4:** Public, state, local, tribal, or federal interests in designation or non-designation of any part of or the entire waterway involved, including the extent to which the administration of any or all of the waterway, including the costs thereof, may be shared by state, local, or other agencies and individuals.
- Factor 5:** Estimated cost of acquiring necessary lands, interests in lands, and administering the area if it is added to the National WSR System. Section 6 of the National WSR System outlines policies and limitations for acquiring lands or interests in land by donation, exchange, consent of owners, easement, transfer, assignment of rights, or condemnation within and outside established river boundaries.
- Factor 6:** Ability of the BLM to manage and/or protect the public lands involved as part of the National WSR System, or by other mechanism (existing and potential) to protect identified values other than WSR designation.
- Factor 7:** Historical or existing rights that could be adversely affected. In the suitability review, adequate consideration will be given to rights held by other landowners and applicants, lessees, claimants, or authorized users of the public lands involved.
- Factor 8:** Other issues and concerns, if any.

Results of the WSR Suitability Review for the Baker RMP Planning Area

The WSR suitability determinations for Planning Area were derived by screening the public lands determined to meet the WSR eligibility criteria against the above eight suitability factors. This screening was first conducted by Jonas Consulting, and then presented to BLM planning team members for the Baker RMP in October, 2009. The BLM planning team made modifications to the suitability review and came up with the following determination:

- The public lands along one reviewed segment of Joseph Creek previously determined to meet the eligibility criteria were also determined to meet the suitability factors.

All other public land parcels determined to meet the eligibility criteria did not meet the suitability factors and were dropped from further consideration. The primary suitability factors involved in the non-suitability determination are Factors 2 and 6, which indicated that: (1) the public lands involved are land-locked by private lands and are inaccessible to the public, and obtaining public access to the public lands via private property would not be likely; (2) the public lands cannot be managed as part of the National WSR System if designation were to occur because of potential management conflicts with the interspersed (up and downstream) and adjacent private lands; and/or (3) a WSR designation is deemed unnecessary or inappropriate as existing mechanisms sufficiently protect identified scenic and historical values (i.e., a WSR designation would provide no foreseeable additional protection; See Appendix 3.8).

Recommendation as a WSR as well as specific interim management prescriptions/actions associated with this river segment will be dependent upon public input as well as the final alternative selected in the Baker RMP.

a. Indicators, Methods, and Assumptions

WSR Indicators

For WSRs, the indicators used to identify the level of impact for analysis are the Outstandingly Remarkable Values and free-flowing nature of existing WSRs and suitable river segments for inclusion into the NWSRS. Following this, impacts to WSRs are actions that potentially threatened, protect, or enhance the river's identified outstandingly remarkable values, free flowing nature, and/or its status as a wild, scenic, or recreational river based on monitoring, public comments or surveys, and professional judgment and experience.

WSR Methods and Assumptions

Potential impacts to WSRs from each alternative are based on interdisciplinary team knowledge of the resources and the Decision Area and information gathered from the public during the planning process. Impacts were identified using best professional judgment and were assessed according to the assumption that most resource uses would be restricted from adversely affecting the outstandingly remarkable values and free-flowing nature of designated WSRs or rivers found suitable for inclusion in the NWSRS. Wild and scenic river designation or suitability determination tends to affect other resource uses, rather than be affected by those resources. Other assumptions made in this analysis include the following:

- Proposed projects and uses, such as fuels treatments, noxious weed control, riparian or wildlife habitat improvements, livestock improvements, and commercial recreation, would be evaluated on a case-by-case basis to ensure that no adverse impacts would occur.
- Valid existing rights would be recognized.

- Adjacent public lands would be managed where possible to prevent unnecessary or undue degradation of WSRs.
 - The existing WSR designation of 43.8 miles along the Grande Ronde River, 10 miles along the Wallowa River, and 11.7 miles along the Powder River (totaling 65.5 miles) would continue to be managed to protect or enhance the rivers' free-flowing character and outstandingly remarkable values, according to the pertinent river management plan (BLM 1992; BLM 1994; BLM et al. 1993).
 - For the eligible segment of Joseph Creek also recommended as "suitable" in the WSR review report (Jonas Consulting 2010), the BLM would provide protection of the outstandingly remarkable scenic and cultural values according to BLM Manual 8351, until Congress acts to either designate Joseph Creek as a WSR, or release it from further congressional review. If designated or released by Congress, the BLM would protect the scenic and cultural values through other management guidelines such as ACEC and VRM Class I designations and the Aquatic Conservation Strategy (ACS; BLM Baker ARMS Appendix 2.2, 2010).
 - The state scenic waterway designations and guidelines would continue to apply to all rivers and streams identified as state scenic waterways.
 - Current county zoning will continue to allow limited development on private land, subject to state scenic waterway regulations.
 - Existing outstandingly remarkable values will continue to be protected and enhanced through existing and proposed management through other resource programs, laws and objectives, such as ARMS, ACS, and VRM.
 - No water development would be allowed in order to protect the outstandingly remarkable values of these river segments and existing state scenic waterway classifications.

Magnitude of Impacts to WSRs

Impacts on WSR outstandingly remarkable and free flowing values would come from management actions that either diminish or enhance the outstandingly remarkable or free flowing values that make the river eligible. The duration of impacts would be considered to be short-term if their occurrence lasts between 1-5 years, and long-term if impacts exceed 10 years.

Negligible: A change enhancing, protecting, or diminishing outstandingly remarkable or free flowing values could occur, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: A change enhancing, protecting, or diminishing outstandingly remarkable or free flowing values would occur, but the change would be small and, if measurable, would be localized and not affect eligibility or suitability determinations.

Moderate: A change enhancing, protecting, or diminishing outstandingly remarkable or free flowing values would occur. The change would be measurable, but localized,

with adverse impacts readily mitigated so as not to threaten eligibility or suitability determinations.

Major: A change enhancing, protecting, or diminishing outstandingly remarkable or free flowing values would occur. The change would be measurable and widespread, with adverse impacts threatening eligibility or suitability determinations.

b. Impacts to WSRs

Impacts to WSRs (designated and suitable) in the Decision Area would result from actions proposed under the following resource management programs:

- Water Resources
- Invasive Plants and Noxious Weeds
- Fisheries
- Wildlife
- Facilities
- Visual Resources
- Livestock Grazing
- Recreation
- Lands and Realty
- ACECs
- WSRs

No Action Alternative

Impacts from Water Resources

Following state and federal regulations to protect watersheds and riparian areas would aid in protecting water quality and quantity within WSRs; however, the No Action Alternative would provide little management direction above that required under state and federal regulations. Beneficial impacts would thus be negligible to minor for WSRs within the Decision Area.

Impacts from Invasive Plants and Noxious Weeds

There would be negligible impacts from the management of invasive plants and noxious weeds under the No Action Alternative on the three designated WSRs or of the three eligible river segments in the Decision Area.

Impacts from Fisheries

There would be negligible impacts from fisheries management under the No Action Alternative.

Impacts from Wildlife

There would be negligible impacts from the management of wildlife under this alternative. Outstandingly remarkable values identified for wildlife would continue to be protected under the direction of the Wallowa and Grande Ronde Rivers Management Plan (BLM et al., 1993).

Impacts from VRM

Under the No Action alternative, there would be no impacts from the management of visual resources of the three designated WSRs as such resources would be adequately protected under their respective river management plans and assigned VRM classifications. For the designated rivers, these classifications are broken down by segment designations. A VRM Class I is assigned for “wild” segments, whereas for the “recreational” or “scenic” segments, a VRM Class II is imposed. Additionally, “eligible” river segments would be protected as VRM II under the VRM classification of their interim management.

Impacts from Facilities

There would be no impacts from the management of facilities under this alternative.

Impacts from Livestock Grazing

Lands acquired since the current Baker RMP (BLM 1989) within WSR boundaries would remain closed to livestock grazing and would, therefore, remove the possibility of utilizing grazing as a tool to improve vegetation condition or to reduce fire hazards, which could directly and indirectly impact the OHVs for which the rivers were designated. This would create minor, adverse, short- and long-term impacts to the river resources at the local level as resulting vegetation conditions or fires change the characteristics of the river canyons. However, there would also be minor, short-term, beneficial impacts as a result of no grazing at the local level. Without livestock grazing, direct and indirect impacts to public recreational uses and experiences as a result of livestock presence and use, such as trailing, loafing in riparian areas, noxious weed spread, shoreline soil disturbance, campsite impacts, and direct recreation/cattle conflicts would be reduced. River segments determined to be “eligible” would be under interim management direction, which would protect the OHVs of those rivers, including impacts from livestock grazing. Overall, adverse impacts would be short-term and minor. Beneficial impacts would be both short- and long-term, but also minor in magnitude. Impacts to the Decision Area from this alternative would be negligible.

Impacts from Recreation

There would be negligible impacts from the management of recreation under the No Action Alternative. Current Wild & Scenic River management plans, as well as the interim management directions for the “eligible” river segments, adequately mitigate recreation use and its impact on the WSRs

Impacts from Lands and Realty

Acquiring lands within the administrative boundaries of WSR areas or lands directly adjacent to these boundaries would directly benefit WSR management for the long term. Special management areas, such as WSRs, are emphasized when seeking possible land exchanges/purchases, as are the lands adjacent to the WSR administrative boundaries due to the high value placed on these public lands. Acquiring lands within WSR administrative boundaries would directly benefit the resources of designated rivers for the long term by adding lands that possess similar outstanding remarkable values. These acquisitions would bring similar resource values identified on private or other public lands under the legislative protection of the NWSRS. Indirect and long-term benefits would also be seen by acquiring lands adjacent to existing WSR boundaries. These acquisitions would add additional protection buffers to designated rivers by becoming public lands. Overall, long-term, beneficial impacts would range from minor to moderate at the local level, and would be minor for the Decision Area.

Impacts from ACECs

Although the management actions identified under the WSR management plans supersede ACEC management, the actions identified for ACECs that adjoin and/or overlap the boundaries of designated WSRs create an additional layer of protection that would buffer any potential impacts to WSR values. Additionally, under this alternative, the lands of the Joseph Creek “eligible” river determination would be protected through interim management direction based on the prescriptions set forth for the protection of the Joseph Creek ACEC/ONA. Therefore the OHVs of this “eligible” river segment would be adequately protected for possible WSR designation in the future. Beneficial impacts would be long-term and minor to moderate for the protection of the eligible and existing WSR values at a local level. Decision Area impacts would be negligible.

Impacts from WSRs

Impacts from the management of WSRs would be negligible under this alternative. There would be no impact from the management of WSRs as the current river management plans protect the resources of the designated river segments. Additionally, the identified “eligible” rivers would have interim management in accordance with current plans or designations. The eligible lower Grande Ronde River and Snake River would continue to be managed as directed by the Wallowa and Grande Ronde Rivers Final Management Plan (1993), and Joseph Creek would have interim management identical to the prescriptions set forth for the Joseph Creek ACEC/ONA. Interim management of these river segments would protect the OHVs for which they were found “eligible” from management actions on the lands of the Decision Area. There would be negligible adverse impacts under this alternative. Beneficial impacts would be both short- and long-term, and moderate to major at the local levels. Decision Area impacts would also be beneficial, short- and long-term, and minor in magnitude.

Impacts same among all Action AlternativesImpacts from Water Resources

In addition to following state and federal regulations, the action alternatives propose direct actions by the BLM, as well as through multi-agency cooperation, in order to increase protection of and improve water quality and riparian areas, which would aid in maintaining or the enhancing free flowing nature and/or outstandingly remarkable values of designated and suitable WSRs. Beneficial impacts, both direct and indirect, would range from minor to moderate at the local level, and be improvements compared to the No Action Alternative. Decision Area impacts would be negligible.

Impacts from Fisheries

Under the action alternatives, management actions aimed at improving native and non-native fish habitats would protect and enhance outstandingly remarkable fisheries and recreational values identified for the three designated rivers. Beneficial impacts would be minor and long-term at the local levels. The suitable segment of Joseph Creek would not be impacted because fisheries were not considered an outstandingly remarkable value during its “suitability” determination. Decision Area impacts would be negligible.

Impacts from Wildlife

In addition to protection afforded under the Wallowa and Grande Ronde Rivers Management Plan (BLM et al., 1993), management actions to improve wildlife under this alternative, including that of game species, would indirectly benefit the recreational values identified for the two WSRs, as well as directly improving the identified wildlife OHV associated with these rivers. Beneficial impacts would be minor, long-term, and local. Impacts to the Decision Area would be negligible.

Alternative 1Impacts from Invasive Plants and Noxious Weeds

Under Alternative 1, there would be higher prioritization of weed control efforts in areas with special designations and management needs, including WSR areas. Focusing control efforts in these river systems, both designated and suitable, would help to protect and enhance their outstandingly remarkable values. Direct minor to moderate, long-term, beneficial impacts at the local level would result as scenic quality, riparian health, and vegetation quality, all of which can drastically be altered by invasive/noxious species, are maintained. Maintaining these components of the river system would help to ensure the protection of wildlife, fisheries, and recreational and scenic OHVs for which the rivers were designated. Indirect beneficial short- and long-term local impacts would occur from the education and dissemination of information to the public about the concerns and risks that noxious/invasive species pose to WSR segments.

These efforts would also help in identifying actions that individuals can take to assist with the control of or limiting the spread of invasive species. Decision Area impacts would be indirect, beneficial, long-term, and minor as knowledge of the invasive species increases.

Impacts from Visual Resource

The inventoried VRM classifications for areas containing the various river segments are rated at VRM Class I (“wild” segments) and VRM II (“scenic” and “recreational” segments). This high visual classification would adequately protect any outstandingly remarkable scenic values associated with the identified WSRs. Indirect, minor to moderate, beneficial impacts at the local level would also occur from the additional buffer protection of ACECs adjacent to designated segments which are classified as VRM II/III. Overall beneficial impacts along WSRs would be minor to major and long-term at the local levels for designated river segments, as well as the “suitable” segment of Joseph Creek. Impacts to the Decision Area would also be long-term, beneficial, but would be minor.

Impacts from Facilities

There would be no impacts from the management of facilities under this alternative.

Impacts from Livestock Grazing

Under Alternative 1, livestock grazing would be allowed as a tool, where appropriate, to meet resource objectives and to protect outstandingly remarkable values, except in designated or suitable river sections classified as “wild.” This would result in improved vegetative condition along the river corridors and contributing streams, with beneficial impacts being minor to moderate in both the short and long term at the local level. However, minor detrimental impacts at the local level would occur in the short term for public users of the area who are either negatively impacted by the presence of livestock, or by the physical changes to sites that occur through grazing. Decision Area impacts would be negligible.

Impacts from Recreation

There would be no impacts from the management of Recreation under this alternative.

Impacts from Lands and Realty/ROW

Impacts would be the same as under the No Action Alternative for the designated WSRs. However, under this alternative the Joseph Creek “suitable” river segment would be classified as “wild” and would, therefore, be considered an “exclusion” zone for ROWs. Land acquisition efforts for these river segments would be emphasized as identified under the No Action Alternative.

Impacts from ACECs

Impacts would be the same as identified under the No Action Alternative for the designated WSRs which possess overlapping ACEC designations. The impacts would not apply to Joseph Creek since the Joseph Creek ACEC/ONA boundaries do not encompass the “suitable” river segment. However, beneficial impacts would occur to this river segment as the management objectives for the ACEC/ONA are imposed on the “suitable” river section as interim protection measures. Overall, impacts would be beneficial, long-term, and minor to moderate at the local level. Decision Area impacts would be minor.

Impacts from WSRs

Under Alternative 1, the number of allowable passengers for motorized boating on the Wallowa River and a portion of the Grande Ronde River would be adjusted. Limiting motorized boating passengers numbers within the narrow confines of the Wallowa and Grande Ronde WSRs would reduce the number of conflicts between water- and shore-based activities caused by motorized boat use, while still allowing motorized use to occur. Concentrated use of this river section during peak use periods for motorized, non-motorized, and shore-based recreation has increased over the last 5 years resulting in conflicts and complaints by all parties as to the overall quality of the recreational OHV for these segments of the river system. This limitation would enhance the Wallowa and Grande Ronde WSRs’ recreational values, resulting in moderate and minor long-term beneficial impacts at local levels. Minor direct adverse impacts would affect the motorized users of these rivers at the local level as boat passenger limitations are imposed. Decision Area impacts would be negligible. Additionally, under Alternative 1, Joseph Creek would be recommended for inclusion into the NWSRS and would thus receive interim management protection. Furthermore, the “suitable” section would be assigned to VRM Class I to adequately protect outstanding scenic values, further protecting outstandingly remarkable values. Overall impacts to designated and suitable WSRs under Alternative 1 would be beneficial, long-term, and moderate at the local level. Impacts at the Decision Area level would be minor.

Alternative 2

Impacts Same as Under Alternative 1

- Impacts from Livestock Grazing
- Impacts from Recreation
- Impacts from Lands and Realty
- Impacts from ACECs

Impacts from Invasive Plants and Noxious Weeds

Impacts would be the same as described under the No Action Alternative for the designated WSRs except that improvements to control methods (chemical, biological, mechanical) could lead to more efficient and timely eradication of invasive species. As with the No Action

Alternative, the Joseph Creek segment would not be recommended for inclusion into the NWSRS and impacts in Joseph Creek would range from minor to moderate at the local level and could be long-term. Decision Area impacts would be beneficial, minor, and long-term.

Impacts from Visual Resources

Impacts would be the same as described under Alternative 1 for the designated and “suitable” WSRs in the Decision Area. Although under this alternative the Joseph Creek segment identified as suitable would not be recommended to Congress for designation, it would still be protected under the inventoried VRM Class II designation for the area. Impacts to the outstandingly remarkable visual values along Joseph Creek would thus be the same as identified under Alternative 1. Decision Area impacts would be negligible.

Impacts from Facilities

Under Alternative 2, there would be an emphasis of improving facilities along WSRs for economic attractiveness. While this economic/commercial use could affect the quality of the outstandingly remarkable recreation, fish, and wildlife values of the river systems as visitor numbers increase in conjunction with business opportunities and services, the increase and its impacts would be mitigated as required under the river management plans. Adverse impacts would thus be minor, local, and short-term. There would also be local, minor, indirect beneficial impacts due to such facility developments as bulletin boards, kiosks, and permit registration points, which would inform and educate users of the resource values of WSRs and the need for ways to protect those values. Decision Area impacts would be negligible.

Impacts from ACECs

Impacts would be the same as described under the No Action Alternative.

Impacts from WSRs

Under this alternative, there would be no change to the designated WSRs within the Decision Area, which would be managed to preserve their outstandingly remarkable values under their respective River Management Plans. This would preserve the OHVs as identified for each of these river segments. However, under this alternative, the “eligible” river segments found to be “suitable” would not be recommended for inclusion into the NWSRS, and the Snake River and Joseph Creek segments would lose the interim management protection of the OHVs identified for each river. However, the interim protection for the lower Grande Ronde River would not change as the management of this segment is already contained within the Wallowa and Grande Ronde Rivers Final Management Plan. The Snake River and Joseph Creek would continue to be managed under other management designations, such as VRM Class I and II, as well as adjacent protections of ACECs, or, in the case of Joseph Creek, the USFS WSR designation immediately upstream of the BLM river segment. It is reasonable and foreseeable that the resource management direction of these other area designations would provide an appropriate amount of

protection of the unique resources of the Snake River and Joseph Creek. Impacts would be adverse and beneficial, minor to moderate, and long-term at the local levels. Decision Area impacts would be negligible.

Alternative 3

Impacts Same as Under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Visual Resources
- Impacts from Recreation
- Impacts from Lands and Realty
- Impacts from ACECs
- Impacts from WSRs

Impacts from Facilities

While Alternative 3 would focus on improving recreational attractiveness of the area, the overall impacts would be similar to those described under Alternative 2.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative 1, with the exception that removing grazing from areas of high recreational value, if there are persistent conflicts with recreational users, would increase protection of outstanding recreational and scenic values. Such beneficial impacts would be minor, local, and could be both short- and long-term. Negligible impacts would occur to the Decision Area.

Alternative 4

Impacts Same as Under the No Action Alternative

- Impacts from Livestock Grazing

Impacts Same as Under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from Visual Resources
- Impacts from Facilities
- Impacts from Lands and Realty
- Impacts from ACECs
- Impacts from WSRs

Impacts from Recreation

Impacts would be similar to Alternative 1, with the exception that non-motorized and mechanized uses would be emphasized along the Wallowa and Grande Ronde WSRs, which would adversely affect historic motorized recreational uses along these rivers. Such impacts would be adverse, local, minor, and long-term. On the other hand, non-motorized and shore based users would experience some minor, beneficial impacts due to reduced conflicts with motorized uses. Decision Area impacts would be negligible.

*Alternative 5 and 5a*Impacts Same as Under the No Action Alternative

- Impacts from Livestock Grazing

Impacts Same as Under Alternative 1

- Impacts from Invasive Plants and Noxious Weeds
- Impacts from VRM
- Impacts from Facilities
- Impacts from Lands and Realty
- Impacts from ACECs
- Impacts from WSRs

Impacts Same as Under Alternative 4

- Impacts from Recreation Management

c. Cumulative Impacts

Since the Wallowa, Grande Ronde, and Powder rivers were designated and included into the NWSRS, the BLM has managed for the protection of their individual outstandingly remarkable values in cooperation with other private, state, and federal agencies to ensure that management actions for the entire river length are seamless regardless of ownership boundaries. This cooperative management effort has significantly contributed to maintaining, enhancing, and protecting the outstandingly remarkable and free flowing values of these rivers. Portions of Joseph Creek above the BLM acquired lands were determined by the USFS as “suitable” for inclusion and protected as WSR. This offered an indirect protection of the private lands below the USFS boundary that were later acquired by the BLM. This acquisition resulted in the current ownership that meets the “suitability” determination as a “wild” river segment.

Present management of the designated areas would continue as it has historically under the river management plans to protect the outstanding remarkable values for which the rivers were designated. The USFS lands located adjacent to (upstream of) the Joseph Creek segment that are

designated as a WSR are not expected to impact the outstandingly remarkable values within the BLM managed Joseph Creek segment and, in fact, complement the BLM management and enhance the protection of the Joseph Creek Outstandingly Remarkable Values. However, activities on adjacent private lands that are beyond BLM mitigations could put the outstanding scenic value of Joseph Creek at risk if projects are developed that significantly impact the viewshed. Since the land surrounding this river segment is primarily privately owned, and the amount of public lands that offer a buffer to the river segment is limited, current demands for projects such as energy developments, mineral extraction, road/trail construction, and others could occur directly adjacent to or in close proximity to the rivers “suitable” segment. Depending on the specific impacts from developments, there could be cumulative impacts to the outstanding geologic/scenic values of the area that could affect the OHVs and future designation of this river.

Future management of the designated rivers would continue as it has in the past under the river management plans, as those plans continue to be highly effective at maintaining, enhancing and protecting the river values. The management of the Joseph Creek “suitable” segment would depend on the determinations and alternative selection of the Final Baker FO RMP. If Joseph Creek is recommended for inclusion as a WSR at the completion of the RMP, the management actions associated with the USFS determination upstream would be considered on the BLM Joseph Creek segment to ensure that management by both agencies is consistent in meeting the objectives of the WSR. Additionally, the Joseph Creek segment would be managed under interim prescriptions as identified for the Joseph Creek ACEC/ONA in order to adequately protect the remarkable values.

Alternative 1

Under Alternative 1, protection measures required of rivers determined to be or designated as Wild & Scenic would be enforced and would adequately protect the unique, rare, and exemplary nature of these corridors. The management actions of other resources in the area of these rivers (such as VRM classification, travel and transportation, land tenure, lands and realty, ACEC management, wildlife, and fisheries, for example) would augment the protection or enhancement of the rivers Outstandingly Remarkable Values. Cumulative, direct and indirect impacts to the designated and “suitable” river segments would be long-term, beneficial, and would be minor to major in magnitude at the local level. There would be negligible impacts to the Decision Area as a whole from this alternative.

Alternative 2

For the designated rivers, the direct, indirect, and cumulative impacts would be the same as identified under Alternative 1. However, Under Alternative 2, the Joseph Creek segment would not be recommended for inclusion into the NWSRS. To date, the outstandingly remarkable values of Joseph Creek have been protected by current management actions, as well as by the geographic isolation of the area. It can be expected that no direct, indirect, or cumulative impacts to the values of the river would result from BLM management. Actions under this

alternative designed to meet other resource objectives such as the VRM, fisheries, T&E species, as well as the protection afforded by the ACEC/ONA downstream and the USFS designated WSR upstream, would offer indirect, cumulative, long-term protection. These impacts would be beneficial and moderate in magnitude and local in nature. However, activities on adjacent private lands that are beyond BLM mitigations could have an indirect cumulative impact on the outstanding values of Joseph Creek if projects are developed that significantly impact the viewshed or geological integrity of the area. Decision Area impacts would be negligible.

Alternative 3

Impacts under this alternative would be the same as described under Alternative 1, except that the cumulative, direct and indirect impacts from the recreational emphasis could create minor, short-term, adverse impacts at the local level to the resources associated with these rivers. However, management actions identified in the river management plans that address recreational use would minimize this impact. The cumulative impacts would be expected to be negligible, short-term and to minor in magnitude at the local area level. Decision Area impacts would also be negligible.

Alternative 4

Under Alternative 4, the direct, indirect and cumulative impacts would be similar as identified under Alternative 1. However, the added emphasis under this alternative for all resources (ACEC, travel and transportation, land tenure, grazing, noxious weed/invasive species control, and VRM, for example) on order to reduce the amount of impacts to the lands of the Decision Area would support the actions required for the protection of the WSR values directly and indirectly. Cumulative impacts would be beneficial, long-term, and local as lands within or adjacent to WSRs for many resources prevent impacts to river values. In many cases, the “light on the land” management direction for resources could offer additional protection buffers to designated and “suitable” rivers from outside impacts. Overall, the beneficial cumulative impacts from this alternative would be moderate in magnitude at the local level and would be negligible for the Decision Area.

Alternative 5 and 5a

Impacts would be the same as identified under Alternative 4. Only negligible additional impacts, direct, indirect, or cumulative from Alternative 5a are anticipated to occur at the local and Decision Area levels.

3. WILDERNESS STUDY AREAS

This section presents potential impacts to WSAs from the No Action Alternative and five action alternatives. There are three WSAs on public lands in the Decision Area: McGraw Creek, Homestead, and Sheep Mountain. See Chapter 3 for a description of these areas.

This section analyzes management actions that influence the wilderness character (i.e., solitude, naturalness, and primitive/unconfined recreation) of WSAs that make them suitable for consideration by Congress to be designated as wilderness areas. Wilderness character is primarily influenced by the proximity of motorized travel corridors and the volume and density of recreational users. To a lesser extent, range and wildlife management projects can affect wilderness character. These impacts normally come from vegetation treatments and range improvements. These impacts can be negative, such as the loss of naturalness or solitude, or positive, such as the enhancement of wildlife populations or ecological function within a WSA.

a. Indicators, Methods, and Assumptions

WSA Indicators

The primary indicators used to compare environmental consequences between alternatives is the degree of protection of WSA values, which would maintain their suitability for consideration by Congress as wilderness areas, and the degree of impacts from activities on adjoining lands based on monitoring and professional judgment.

WSA Methods and Assumptions

This analysis of impacts to WSAs is based on the following assumptions:

- WSAs would continue to be managed under the Interim Management Policy (IMP) for Lands under Wilderness Review (BLM Handbook H-8550-1). This would remain in effect until such time as Congress either designates all or portions of the WSA as wilderness, or releases the WSA or portions of WSAs from any further wilderness consideration, at which time the lands would revert back to general land use management or any specific management actions identified in this RMP for released WSAs. The five practical effects of the IMP for Lands under Wilderness Review are:
 - 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 that the FLPMA specifically exempts from this standard (such as grandfathered uses);
 - Permitted activities in WSAs (except grandfathered and valid existing rights) are temporary uses that create no new surface disturbance or involve permanent placement of structures;
 - 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;
 - Lands under wilderness review may not be closed to appropriation under the mining laws in order to preserve their wilderness character;
 - All lands must be managed to prevent unnecessary or undue degradation.

- By managing WSAs according to above IMP, the BLM would conduct regular WSA monitoring and work to deter, detect, report, and rehabilitate any damage or impairment to WSAs in order to maintain their suitability for designation.
- Funding would be available to conduct regular WSA monitoring work and take necessary action to prevent and correct violations.
- Projects proposed within a WSA, such as the use of wildland fire, riparian and wildlife habitat improvements, noxious weed control, and grazing improvements, require a site-specific analysis in accordance with the IMP and must meet the “non-impairment criteria” in order to proceed.
- The IMP provides specific guidance for management of most uses in WSAs, including commercial permits, OHV use, motorized vehicle use, energy and mineral uses, and land use authorizations.

Magnitude of Impacts to WSAs

The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:* The impact is at the lower level of detection; there would be no measurable change to wilderness character.
- Minor:* The impact is slight but detectable; the change would be small and, if measurable, would be localized and not affect wilderness character.
- Moderate:* The impact is readily apparent; there would be a measurable change that could result in a small, localized, but permanent, change to wilderness character, but not enough to impair the WSAs suitability for preservation as wilderness.
- Major:* The impact is severe; there would be a highly noticeable or permanent, measurable change to wilderness character that could impair the WSA suitability for preservation as wilderness.
- Short term:* Impacts are defined as those impacts that are noticeable from 1-5 years.
- Long term:* Impacts are noticeable for more than 5 years.

b. Impacts to WSAs

Impacts to WSAs in the Decision Area would result from actions proposed under the following resource management programs:

- Invasive Plants and Noxious Weeds
- Fire and Fuels Management
- Visual Resources
- Lands with Wilderness Characteristics
- Recreation
- Travel and Transportation
- Lands and Realty

- ACECs
- WSAs

Impacts Common to all Alternatives

Impacts from Invasive Plants and Noxious Weeds

Although management actions under the current Baker RMP (BLM 1989) do not specifically address the control of noxious weeds in WSAs, current management places an emphasis on the control of these species in special designation areas. Focusing control efforts in these areas would protect and enhance the wilderness character of WSAs. Indirect effects would occur from the education and dissemination of information to the public on the concerns and types of noxious/invasive species, the risks they pose to public lands, as well as actions that individuals can take to assist with the control or limiting the spread of invasive species. Moderate, long-term, beneficial impacts would occur due to higher prioritization of control efforts in areas with special designations and management needs, such as in WSAs. Decision Area impacts as a result of information and education would be beneficial and minor in magnitude.

Impacts from Fire and Fuels Management

Although the current Baker RMP (BLM 1989) does not specifically address the management of fire within WSA boundaries, policies and regulations regarding the management of these areas are utilized with the goal of retaining the wilderness character they possess. The impacts from wildfire would appear to be naturally occurring and would not adversely affect the characteristics of the WSAs. Minor, local, long-term, beneficial impacts occur from use of wildland fire and allowing fire to play a natural role whenever possible as an important tool for improving ecosystem health within wilderness and WSAs where mechanized tools are not an option. However, the presence of fire events has local minor to moderate, short-term, adverse impacts on the visual aesthetics of the area, which would be perceived by most users of the public lands as a negative impact. Decision Area impacts would be negligible.

Impacts from ACECs

Retaining the designation of the 8,537-acre Homestead ACEC and the 5,398-acre Sheep Mountain ACEC adds an extra layer of protection on the wilderness character of the WSAs contained within or adjacent to those ACEC boundaries. The WSA IMP takes precedence over ACEC direction unless the other management direction is more restrictive and protective than the IMP, in which case the more restrictive management would be followed. Under ACEC direction, motorized and mechanized vehicle use would be limited to designated roads, which helps to protect the WSAs from inadvertent or intentional driving off road. Local beneficial impacts would be minor to moderate, long-term from the management of ACECs under this alternative. Decision Area impacts from this management would be negligible.

No Action Alternative

Impacts from Visual Resource

Under the No Action Alternative, WSAs would be protected under a VRM II classification to help ensure the wilderness character of the area. This VRM rating has served to protect the WSAs from visual impacts in the past, however, more and more pressure for developments on public lands are proposed and the current VRM II designation could possibly allow for slight visual intrusions in the future. Mitigations of these impacts would be imposed by WSA management and VRM restrictions in order to reduce the impact to the wilderness character values. Negligible impacts would occur from the management of WSA under this alternative at both the local and Decision Area levels.

Impacts from Lands with Wilderness Characteristics

The two areas adjacent to two WSAs that were found to possess wilderness characteristics would not be managed to protect those characteristics and would, therefore, offer no protection buffer to their adjoining WSAs. Projects or activities allowed on these adjacent lands under this alternative could impact the characteristics of the WSAs as viewshed or solitude character quality is reduced. Moderate to major, long-term, adverse impacts could occur from the management of identified lands with wilderness characteristics under this Alternative at the local level, with negligible impacts occurring to the Decision Area as a whole.

Impacts from Recreation

No actions proposed under the recreation management program would impact WSAs.

Impacts from Travel and Transportation

Although the WSAs are closed to motorized uses except on the one identified “cherry stem” road of Sheep Mountain WSA, the “Open” classification for motorized uses on most of the BLM managed lands adjacent to these areas provides a situation whereby accidental and/or intentional motorized violations of the WSA closure can occur. Public motorized use of adjacent lands where little or no restrictions are applied often overflows into WSAs and can create a proliferation of motorized primitive trails. Over time, these impacts could result in the degradation of the characteristic values. Minor to major, long-term, adverse impacts could occur from the management of travel and transportation at the local level under this alternative. Decision Area impacts would be negligible to minor in magnitude.

Impacts from Lands and Realty

Adverse impacts could result by not emphasizing the acquisition of lands adjacent to or within WSAs; therefore no additional public land protection buffer from outside impacts would result. Developments on adjacent private lands could impact the characteristic values associated with

the WSA units. However, beneficial impacts would result by maintaining the WSAs as Avoidance zones for developments and ROWs, as well as Z-1 retention zones, which would continue to aid in the protection of the values for which the areas were identified. Overall, impacts, both adverse and beneficial, would be local, minor to moderate, and long term from the management of Lands and Realty under this alternative. Decision Area impacts would be negligible.

Impacts from WSAs

Implementation of WSA IMP management would continue to adequately protect the characteristic values of the WSAs. Moderate, long-term, beneficial impacts would occur from the management of WSAs under this alternative at the local level. Negligible impacts to the Decision Area would be expected.

Impacts Common to all Action Alternatives

Impacts from Visual Resources

Reclassification of WSAs to a VRM I rating would ensure that the visual integrity of the areas is retained and that no visual impacts to wilderness character would occur. Local, moderate, long-term, beneficial impacts would occur from the management of WSA under this alternative. Decision Area impacts would be negligible.

Alternative 1

Impacts from Lands with Wilderness Characteristics

As inventories of lands adjacent to WSAs are performed currently or in the future, and if those lands are determined to contain wilderness characteristics, the protection of these areas would offer an additional buffer to the currently identified WSAs. This added protection would further insulate the unique features of the adjoining WSAs and add to the quality and quantity of primitive recreation experiences that they offer. Local minor to moderate long-term beneficial impacts from the management of lands with wilderness characteristics would occur under this alternative. Impacts to the Decision Area would be negligible to minor depending on the size and location of characteristic lands.

Impacts from Recreation

Although vehicle use restrictions within WSAs are already enforced, the limited designation for road, primitive road, and trail use would continue to benefit WSAs by further reducing motorized impacts on lands directly adjacent to or within view from unit boundaries. There would be negligible, indirect, beneficial impacts from the management of recreation under this alternative at both the local and Decision Area levels.

Impacts from Travel and Transportation

By specifically identifying areas or road systems where motorized uses are or are not authorized, additional protection of WSAs would occur. In addition, the reduction of acres available for “Open” motorized use would help to reduce or eliminate accidental motorized violations in WSAs. There would be minor to moderate, long-term, beneficial impacts to WSAs from the management of travel and transportation under this alternative at the local level, and negligible impacts to the Decision Area.

Impacts from Lands and Realty

By emphasizing the acquisition of lands adjacent to WSAs from willing sellers, additional protection from outside impacts could result. In addition, maintaining the WSAs as Exclusion zones, the withdrawal of WSAs to mineral entry, as well as Z-1 retention areas, all would add to the continued protection of the values for which the areas were identified. Moderate, long-term, beneficial impacts at the local level could occur from the management of Lands and Realty under this alternative. Decision Area impacts would be negligible.

Impacts from WSAs

Impacts would be the same as described under No Action Alternative, except that physical barriers or parking facilities would be built outside the boundaries of the WSA to resolve specific motorized use impacts. This indirect benefit would add to the protection of the WSA values. Additionally, resources associated with the existing WSAs would continue to be protected under this alternative if any of the WSAs were to be released by congress. Released WSAs would continue to be protected under the management objectives identified for the overlapping ACECs, thereby ensuring some protective measure for the unique resources of these areas.

*Alternative 2*Impacts same as under Alternative 1

- Impacts from Lands with Wilderness Characteristics
- Impacts from WSAs
- Impacts from Recreation

Impacts from Travel and Transportation

Beneficial impacts would be the same as Alternative 1. However, minor to moderate, long-term, adverse, indirect impacts could occur under this alternative at the local level. The direction to construct roads and trails in the Decision Area to accommodate commercial or economic demands could have minor to moderate impacts on WSA values. Although roads or trails would not be developed within WSA boundaries, commercial and/or economic demands under this alternative may create these road and trail systems adjacent to or near WSAs. Encouraging

commercial use through improved maintenance or development of roads/trails networks could allow for easier access to the boundaries of the WSAs. An indirect effect would be seen as use increased in these areas in the form of dispersed human impacts such as trailing, campsites, noxious weed spread, and possible motorized use violations, as well as other minor resource impacts. These impacts would be magnified due to the small size of the WSA units, which concentrates use patterns. Indirect impacts as a result of improved access could detract from the primitive character and solitude of WSAs. Overall impacts from this alternative would be both beneficial and adverse in nature, minor to moderate in magnitude, local, and both short- and long-term. Decision Area impacts would be expected to be negligible.

Impacts from Lands and Realty

Impacts would be the same as those described under the No Action Alternative, except that land tenure adjustments could directly benefit WSAs as lands adjacent to or within those areas are prioritized for acquisition.

Alternative 3

Impacts Same as the No Action Alternative

- Impacts from ACEC

Impacts Same as under Alternative 1

- Impacts from Lands and Realty
- Impacts from WSAs

Impacts from Lands with Wilderness Characteristics

Impacts would be the same as described under Alternative 1 except that some developments could be allowed to occur in wilderness characteristic areas as long as they do not degrade the characteristic values. Specific analysis of these impacts would occur as projects are proposed (i.e. communication sites, reservoir developments, range improvement projects, and so forth) to determine if they would impact, or could be mitigated to avoid degradation of the characteristic values. If wilderness characteristic areas are adjacent to WSAs, these impacts would be mitigated to protect adjacent WSA resources and would be negligible. Decision Area impacts would also be negligible.

Impacts from Recreation

By identifying WSAs as SRMAs, management actions would be focused on recreational uses of these areas. Facilities, control measures, and other developments adjacent to WSAs would be implemented to concentrate, disperse, and mitigate user conflicts or resource impacts affecting the WSA values. Under this alternative, recreational use conflicts and resource damage would

be reduced as developments and BLM administrative presence would change recreational use patterns. The limited designation for road, primitive road, and trail use would offer additional protection on adjacent lands. There would be minor to moderate, local, beneficial impacts from the management of Recreation under this alternative. Negligible impacts would occur to the Decision Area overall.

Impacts from Travel and Transportation

Beneficial impacts would be the same as Alternative 2, except that due to an emphasis on recreation access and use, the construction of roads and trails could have a more moderate, adverse impact on WSA values. Encouraging recreational use through improved access (e.g., through the maintenance and development of roads and trails, access mapping, website information, and marketing), more users would likely seek to visit these areas. Direct, local, moderate, adverse, short- and long-term impacts would be seen in the form of dispersed human impacts (i.e. trampling, campsites, litter, and motorized boundary violations) as these areas are discovered and public use levels to WSAs increases. Decision Area impacts would be negligible.

Alternative 4

Impacts Same as under Alternative 1

- Impacts from Lands with Wilderness Characteristics
- Impacts from Lands and Realty Management
- Impacts from WSAs
- Impacts from Recreation

Impacts from Travel and Transportation

Currently existing roads and trails, if in low use areas adjacent to, or in some cases within, WSAs, would be maintained at lower levels or decommissioned if resource values are being negatively impacted. However, under Alternative 4, the development and maintenance of roads and trails that could access WSAs to meet public demands would be focused on non-motorized forms of access. Although the use of WSAs would increase over time, the methods of access (non-motorized) would likely keep use numbers at low to moderate levels, as well as reducing the types and severity of access impacts. Indirect benefits would be seen as a result of the switch to non-motorized access, which would support the primitive character and solitude of the WSAs. Overall, local, minor to moderate, long-term, beneficial impacts would occur from the management of travel and transportation under this alternative, with negligible Decision Area-wide impacts.

Alternative 5**Impacts Same as under Alternative 1**

- Impacts from Lands with Wilderness Characteristics
- Impacts from Lands and Realty Management
- Impacts from WSAs
- Impacts from Recreation

Impacts Same as under Alternative 4

- Impacts from Travel and Transportation

c. Cumulative Impacts***No Action Alternative***

Past actions associated with the WSAs in the Decision Area have been successful in the preservation and protection of the units, as well as providing recreational opportunities to enjoy these unique areas. The past actions of management, which range from the restriction of negatively impacting activities, to the appropriate restoration of fire events, have strived to ensure that these special areas continue to be available for the experiences that they can provide. The BLM-administered public lands and the “checker board” pattern of those lands in the Decision Area do not account for large acres that suffice for wilderness or WSA designation as there are only 15,504 acres currently designated in 3 separate units. However, other federal designations of Wilderness do exist within the Planning Area on USFS lands, which provide 584,956 acres of wilderness in six units. It is in these USFS areas that the primary opportunities for wilderness experiences are provided. Both cumulatively and currently, there are ample opportunities to attract and accommodate primitive forms of recreation within the Decision Area.

Present actions that affect WSAs consist of the level of use and the methods of access utilized to reach WSA boundaries. Historical and projected population increases influence wilderness areas and WSAs, which are typically used for primitive recreation, such as camping, hunting and hiking. Current trends in population growth will continue to add pressure to the WSA as more individuals explore these primitive or pristine settings. With the small size of BLM-managed WSAs in the Decision Area, which range from 497 to 7,600 acres, increasing use patterns can have a significant effect on the qualities and characteristics of the units. As use increases to WSAs as a result of demand or technology that improves ease of access, it can be assumed that the experiences of recreationists in these areas would diminish in quality. Current technological improvements in the form of personal motorized equipment is the greatest threat to the WSAs as these newest generations of equipment can easily traverse the topography to reach unit boundaries, and, in some cases, continue further into the units in violation of closures or physical barriers. Impacts left by these violations can be short- or long-term and, in some cases, permanent.

Future impacts would continue to result from the historical and projected population increases for the Decision Area. The Decision Area's projected population growth over the next 20 years would continue to increase demand for primitive, unconfined recreation areas in and around the WSAs. Use of these areas would be expected to intensify as population increases. Although past uses of these areas have been minimal, the historic level would not be expected to continue. This added pressure, along with the ever-increasing forms of motorized access, would continue to impact WSAs in the future. Management actions to preserve or protect these areas would need to intensify to compensate for demands, as well as to mitigate any negative impacts. Although the wilderness experiences capable of being had within the Planning Area can accommodate a significant amount of use as a result of USFS designations, the increased use expected would be noticed and could begin to degrade the quality of characteristics of these areas if not appropriately managed,

Alternative 1

Under Alternative 1, the management of the WSAs would continue to offset direct and indirect impacts by utilizing appropriate management actions to mitigate resource uses. The management actions of other resources, such as ACEC management, VRM reclassification, travel and transportation management, and land tenure adjustments, as well as those proposed for the WSA units, would cumulatively protect the characteristics for which the areas were designated. The cumulative impacts to WSAs under this alternative would be beneficial, long-term, and moderate in magnitude at local levels. Impacts to the Decision Area as a whole would be negligible.

Alternative 2

Under Alternative 2, the cumulative impacts to the area would be similar to those identified under Alternative 1 in regards to management and mitigations to meet the legal requirements imposed on WSAs. In addition, the management of other resources, such as VRM classifications and ACEC management, would continue to offer cumulative, beneficial protection to these units. However, an increase in negative cumulative impacts as a result of actions on adjacent lands could occur as the increase for commodity developments intensifies. Mineral exploration and extraction, timber harvest, travel and transportation developments or improvements, and other economic pursuits would cumulatively impact the qualities of the WSAs both directly and indirectly. Economic developments could push activities and projects to lands adjacent to WSA units, and where legally allowed, into unit boundaries. This alternative would directly, indirectly and cumulatively create the most potential threats to WSAs. Local, adverse impacts from this alternative could be moderate in magnitude and both short- and long-term. Impacts to the Decision Area as a whole would be minor.

Alternative 3

Direct, indirect, and cumulative impacts under Alternative 3 would be similar to those described under Alternative 1, with the exception of those for recreational activities. Focusing on the

primitive and un-confined recreational opportunities of the areas would influence the interim route network, and funnel increased use to these areas. Adverse cumulative impacts could result, both directly and indirectly, affecting the quality of experiences as additional uses on adjacent lands increases. Cumulative impacts would be locally adverse, minor to moderate in magnitude, and long-term. Decision Area impacts would be negligible.

Alternative 4

Under Alternative 4, the direct, indirect and cumulative impacts would be similar to those identified under Alternative 1. However, the added emphasis under this alternative for all resources (ACEC, travel and transportation, land tenure, VRM, etc.) to reduce the amount of impacts to the lands of the Decision Area would support the actions required for the protection of the WSA directly and indirectly. Cumulative impacts would be beneficial and long-term as lands within or adjacent to WSA for many resources prevent impacts to WSA characteristics and, in fact, buffer the existing boundaries from outside impacts. The beneficial cumulative impacts from this alternative would be moderate to major in magnitude at the local level. Negligible impacts would be expected for the Decision Area as a whole.

Alternatives 5 and 5a

The direct, indirect, and cumulative impacts under this Alternative would be the same as identified under Alternative 4.

E. IMPACTS TO SOCIAL AND ECONOMIC CONDITIONS

1. SOCIOECONOMICS

a. Indicators, Methodology and Assumptions

Socioeconomic Questions

1. How will BLM actions proposed in the Baker FO RMP impact the local economy?
2. How will BLM actions proposed in the Baker FO RMP impact communities living and interested in the Planning Area?

Socioeconomic Indicators

1. Employment and labor income supported as a result of BLM management actions.
2. Changes to community well-being, resiliency, and the interests or concerns expressed by communities are measured by recreation visitation, AUMs offered by the BLM, forest product offerings, fuels treatment acres, the potential for spread of noxious weeds, payments to counties, acres under special designations, and access to commodity and non-commodity uses.

Socioeconomic Assumptions

- The Planning Area population will continue to increase and age as described in Chapter 3.
- The social groups are defined to facilitate the discussion of social impacts. These discussions simplify what are often quite complex and unique values and attitudes and the groupings presented here are by no means mutually exclusive. For example, many ranchers also participate in recreation activities. It is also worth noting that attitudes, interests, and values often change over time. The social analysis covers the groups and individuals that are most likely to be affected by this plan.
- Regional economic impacts are estimated based on the assumption of full implementation of each alternative. The actual changes in the economy would depend on individuals taking advantage of the resource-related opportunities that would be supported by each alternative. If market conditions or trends in resource use were not conducive to developing some opportunities, the impact on the economy would be different than estimated here.
- Resource specialists projected annual resource outputs based on the best available information and professional judgment. The purpose of the economic analysis is to compare the relative impacts of the alternatives and should not be viewed as absolute economic values.
- Ninety-seven percent of timber harvested within the impact area is logged by logging contractors, while three percent is logged by local residents. One-hundred percent of fuelwood collected within the impact area is collected by households (personal communication with Baker FO staff).
- The ratios of harvests to jobs and income used to assess the impacts of the alternatives are based on statewide ratios developed for Oregon by the University of Montana (Keegan et al. 2003).
- Over the long term, timber prices are residual values determined by national and international markets based on what the final product market will pay for timber, rather than supply competition at the local level (Lippke et al. 2006). In addition, the share of timber contributed to total harvest in the area is relatively too small to have price impacts in the short term.
- Projected recreation visits are distributed among different types of visitors based on the results of National Visitor Use Monitoring (NVUM) surveys conducted for the Wallowa Whitman and Umatilla National Forests.
- The ratios of recreation visits to jobs and income used to assess the impacts of the alternatives are based on national ratios developed through the USFS's NVUM program (Stynes and White 2005).
- Baseline recreation demand is assumed to increase by 2 percent per year for non-local visitation and 1.4 percent for local visitation, based on projected population increase for counties in Oregon and Washington and the observed annual rate of recreation use in the Decision Area (Portland State University 2004; State of Washington 2007; and REMIS 2008).

- Non salary-related expenditures made by the Baker FO are assumed to be allocated to different economic sectors based on data compiled for the Wallowa Whitman National Forest.
- Range revenues received by the BLM and benefits of BLM forage were calculated using the conservative AUM price for 2010 of \$1.35 per AUM and the 2007 statewide average AUM price for private land (USDA 2007) adjusted for inflation.
- Taxes to local government received as a result of wind energy development follow the default assumptions for Oregon as determined by the National Renewable Energy Lab's Wind model (DOE 2009), which assumes local revenues received amount to 1 percent of taxable value (33 percent of assessed value, where assessed value is 85 percent of construction cost).
- Weed treatments by the Tri-County Cooperative Weed Management Association (TCWMA) on BLM are funded by BLM and external sources. The TCWMA treats approximately 85 thousand acres of weeds on the Decision Area per year (personal communication with TCWMA staff 2009) and conservative estimates for herbicide treatment per acre for BLM districts on the east-side are \$100 per acre (Oregon Vegetation EIS 2009). The total cost of annual treatment comes to \$546,470, of which approximately \$400,000 comes from the BLM (personal communication with Baker FO staff). Therefore, externally-funded weed treatments on the Decision Area are conservatively estimated at \$146,470 annually.

Socioeconomic Analysis Methods and Issues

- The impact area for the social and economic analysis consists of the six Oregon and Washington counties that include lands managed by the Baker FO: Asotin County in Washington and Baker, Morrow, Umatilla, Union and Wallowa counties in Oregon.
- Potential economic impacts are assessed using the Forest Economic Analysis Spreadsheet Tool (FEAST) developed by the USFS's Inventory and Monitoring Institute in Fort Collins, Colorado. This tool uses a Microsoft Excel workbook as an interface between user inputs and data generated using the Impact Analysis for Planning (IMPLAN) input-output modeling system (FEAST 2009).
- The FEAST analysis assesses the economic impacts of the resource outputs projected under each alternative. Resource outputs in this context are the amount of a resource (e.g., fuelwood, AUMs, recreation visits etc.) that would be available for use under each alternative. Average annual resource outputs were projected by resource specialists for each alternative for a 10-year planning period based on the best available information and professional judgment.
- Employment and labor income estimates developed for this analysis include direct, indirect, and induced economic effects. Direct employment would, for example, be generated in the grazing sectors. Additional employment would be generated as the affected livestock operators purchase services and materials as inputs ("indirect" effects) and ranchers spend their earnings within the local economy ("induced" effects). Direct, indirect, and induced effects are combined in the discussion of effects below.

- Theoretically, expenditures associated with changes in final demand would be available and specific enough to allocate to each of the 509 sectors contained in the IMPLAN model. In the absence of primary data, national-level production functions are used. Expenditures should be delineated between local and non-local providers, as purchases out of the economic study region will have no local economic impact. IMPLAN's data contains information, called regional purchase coefficients, which describe the proportion of a given commodity that will be provided by local producers. Previous modeling experience has shown that the data contained in the IMPLAN modeling system for the various sectors accurate representations of impacts.
- Biomass opportunities may exist, but are not analyzed given a lack of understanding of obstacles to implementation and impracticalities of projecting future scenarios for implementation.
- Non-market values, including natural amenities, non-use values, ecosystem services, and aspects of well-being and quality of life are assessed in qualitative terms, as appropriate.
- The social analysis assesses the potential effects of different management actions on social groups who would be potentially affected. These groups were identified based on the results of public scoping and comments received during the planning process. This analysis addresses the potential impacts of the alternatives based on the issues and concerns raised by these groups. Furthermore, this analysis draws upon ongoing discussions between the BLM and potentially affected publics, as well as discussions with subject matter experts involved in other parts of the analysis. The analysis is primarily qualitative with potential impacts ranked by alternative. Quantitative measures, such as acres in protected areas and recreation visitation, are used as appropriate.
- The environmental justice analysis presented under Impacts Common to All Alternatives assesses the potential for the proposed alternatives to have disproportionately high and adverse human health or environmental effects on minority and low-income populations. The fair treatment and meaningful involvement of people of all races, cultures, and incomes in this planning process is also considered.

Economic and Social Impacts

This section presents an analysis of social and economic impacts of the management alternatives proposed in the Baker Draft RMP/EIS. This document will discuss employment, labor income, and effects on sectors in the impact area economy that encompass the Baker FO. Impacts to revenues received by states and counties, environmental justice, and communities within the Planning Area will also be presented. Finally the alternatives will be discussed in light of forecasts for the area over the ten-year period of analysis.

The economic analysis focuses on changes in labor income and employment associated with BLM planning actions and estimated outputs for the alternatives (Table 4-14). The social analysis focuses on the interests and concerns of identified communities relative to the alternatives. Higher employment, subject to some qualifications, can be seen as a benefit to the local community. Other benefits are also present, although some are not easily measured or tied

to economic activity. Example of where effects are difficult to quantify include equity effects, impacts to social values, and non-market values. Regardless, these benefits are discussed despite our inability to measure them quantitatively.

Table 4-14. BLM Outputs per alternative

Output	Current ¹	Alternative						
		No Action	1	2	3	4	5	5a
General Recreation (visits)²	168,750	184,915	186,772	190,967	195,264	182,677	182,677	182,677
Fish and Wildlife Recreation (visits)	56,250	61,638	62,257	63,656	65,088	60,892	60,892	60,892
Cattle (AUMs)³	37,714	44,264	44,240	45,155	43,297	37,979	29,831	0
Sheep (AUMs)	358	740	740	740	740	740	740	0
Forest Products (MBF)	750	2,400	500-1,000	1,000-2,500	500-1,000	500-1,250	0	0
Gold (Troy Ounces)	500	500	500	500	500	500	500	500
Pumice (short tons)	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Crushed Stone (short tons)	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000

¹Estimates include actual use levels (average annual use).
² Recreation visits are expected to increase by 1.4 and 2 percent for local and non-local users, respectively, as a result of population change. These are annual rates of increase that would occur in addition to anticipated changes associated with recreation management under the alternatives.
³Data are based on AUMs available for activation under estimated authorized use. The share of authorized use from what is available has slightly decreased from 80 percent in 1998 to 77 percent in 2008 (see Table 3.57 Annual AUM Authorizations in the Planning Area in Chapter 3).

b. Impacts to Economic Conditions

Impacts Common to all Alternatives

None of the alternatives would be expected to reduce economic diversity (the number of economic sectors) or increase economic dependency, which occurs when the local economy is dominated by a limited number of industries. Shifts in emphasis could occur, but these would not result as a consequence of planning actions in this RMP. While the alternatives have the potential to affect local businesses and individuals, the relative contribution of BLM related activities to the local economy (see Chapter 3 Socioeconomics discussion) and the relative differences between the alternatives would not be large enough to have any measurable effect on economic diversity or dependency. For example, the dependency of the local economy on livestock industry, forest products, mining, and recreation activities would not be affected by BLM resource management under this RMP. Under all alternatives, all BLM-related contributions (i.e. jobs and labor income) would continue to support less than one percent of the total economy within the impact area, but could be more important for smaller communities within the Planning Area.

Estimates of the levels of employment and labor income that would be supported by the alternatives are based on projected resource outputs from BLM management actions (Table

4-14), estimated payments to counties (Table 4-16), BLM expenditures, and other externally funded activities on public lands. The projected outputs and activities are discussed by resource in the following sections. Estimated average annual employment and labor income from outputs and activities are summarized in Table 4-19 and Table 4-20, respectively.

Impacts from Recreation

While change in recreation may occur as a result of planning actions in the alternatives, the role of recreation in the local economy will continue to increase as cultural and historical interpretation, OHV use, boating, and other forms of recreation continue to increase. Increased travel to the area from outside for the enjoyment of these opportunities is not an unreasonable assumption. Population projections for counties where visitors to the area come from suggest an annual average increase of two percent is reasonable and conservative (Portland State University 2004). Similarly, population projections for counties within the Planning Area suggest an annual average increase of 1.4 percent is reasonable (Portland State University 2004; State of Washington 2007).

While different levels of recreation are supported by the alternatives, recreation management would continue to sustain opportunities important to the area economy and well-being under all the alternatives. As noted in Chapter 3, opportunities provided to local residents are important; however, their recreation expenditures do not represent new money introduced into the economy. If the BLM related opportunities were not present, it is likely that residents would participate in other locally-based recreation activities and this money would still be retained in the local economy. Therefore local recreation visits are not included in the effects from the alternatives. Even without including this portion of income from local recreation use, recreation in the Decision Area would sustain more jobs and labor income annually than contributions from grazing, forest products, and mining programs under all the alternatives (Table 4-19 and Table 4-20).

Jobs and income associated with recreation management should not overshadow the economic value of experience held by recreation users within the Planning Area. For example, boating or motorized use in the Planning Area could change as management actions are implemented. As a result, the value of these recreation experiences could change as visitor use changes. However, estimates of visitor use for boating, OHV, and other motorized and non-motorized recreation are not available due to the lack of data regarding visitor use levels for these activities. Regardless, changes in the quantity and quality of these recreation experiences offered are discussed in the recreation section of this EIS.

Impacts from Grazing

The Planning Area's relatively low level of dependency on BLM forage⁴ would continue under all the alternatives. Estimated authorized use⁵ under all the action alternatives (Table 4-14) would provide 2 percent or less of total forage needed to feed 2007 levels of livestock in the Planning Area. Jobs and labor income associated with BLM grazing would continue to account for less than one percent of area totals. Additionally, jobs and labor income in the agricultural sector associated with BLM management would account for less than one percent of area totals in the agricultural sector across all the alternatives.

While dependency on BLM forage would remain low, it would continue to provide a low-cost and important complement to some livestock producers' grazing, forage, and hay production. For smaller communities within the impact area, dependency on BLM forage could be greater. In addition to potential changes in projected employment and income as a result of changes in BLM forage offered, the value of BLM forage to area operators should also be considered. This value can be estimated as the difference between the competitive market price of an AUM and the BLM grazing fee. This value is experienced above the price ranchers pay for AUM leases and can be considered a benefit. The benefit to operators from the potential authorized BLM grazing varies amongst the alternatives but would not fall below \$390,000 (2009 dollars). Payments to counties under the Taylor Grazing Act would continue under all the alternatives and are included in Table 4-16 and discussed below.

Impacts from Forest and Woodland Products

All the alternatives would continue to supply wood product materials. As shown by the estimates of forest products output in Table 4-14, commercial harvest varies by alternative, but SFPs would be available at current levels under all the alternatives. Under the No Action Alternative, timber under the current ASQ would potentially be available, while under the action alternatives the PSQ would potentially be available. While harvests under the No Action Alternative and the action alternatives would not have a large effect, considering the total amount of material available from all ownerships in the area, (See Chapter 3, Figure 3-9); they are still locally important since these contributions help insulate regional timber market changes (JKA 2006).

⁴ As discussed in Chapter 3, between 1998 and 2008, an average of 37,652 cattle AUMs and another 358 sheep and goat AUMs have been authorized on BLM in the Decision Area, which represented approximately 1.8 of the forage required for the cattle and 0.4 percent for sheep within the six county Planning Area in 2007.

⁵ The estimated level of authorized use is the maximum number of AUMs that could be offered under ideal forage conditions which may not be an accurate portrayal of actual impacts. Factors such as drought, financial limitations on operators, market conditions and implementation of grazing practices to improve range conditions are important to consider.

Impacts from Fire and Fuels Management

Current fuel treatment levels are less than acres treated under all the alternatives (Table 4-15). Wood products would be available from the slash and mechanical treatment of fuels under all the alternatives. This would provide fuelwood and, to the greatest practical extent, would allow for the future entry of new business that might offer value added products (such as log homes or furniture) or biomass energy. Given favorable market conditions, some of these nontraditional materials might be utilized efficiently within new industries.

Table 4-15. Potential acres treated per decade by Prescribed fire, wildland fire and other methods

	Current	Alternative					
		No Action	1	2	3	4	5/5a
Prescribed or use of wildland fire	9,000	9,000	30,000	20,000	25,000	50,000	40,000
Use of mechanical, chemical, or cultural fuels management techniques	9,000	9,000	40,000	60,000	35,000	60,000	25,000
Total	18,000	18,000	70,000	80,000	60,000	110,000	65,000

Potential wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected. It is commonly accepted that fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where fuels have not been treated. For example, fires generally burn hotter and flame lengths are higher in non-treated areas (BLM 2007).

Impacts from Mineral Resources

Current levels of leasable, locatable, and salable mineral production would continue to be provided by the BLM in the Planning Area (Table 4-14). While current mining activities are not a direct result of new planning actions in this RMP, management under this RMP would allow and determine the nature of these activities in the future. For example, withdrawal from mineral entry would occur for portions of ACECs with mineral potential and for Oregon Trail sites at Flagstaff Hill, Straw Ranch, and Echo Meadows. Regardless of these changes, current levels of production and their associated employment and labor income (approximately 4 jobs and \$156,000 in labor income) would be supported under all the alternatives (Table 4-19 and Table 4-20).

Crushed stone removed by county and state governments operate under free use permits such that no revenues or lease fees are received by the BLM and, consequently, no payments to counties are made. Similarly, gold is removed recreationally and no lease fees are paid; however, recreational miners do pay federal taxes on revenues received. No fees are collected from the removal of saleable and locatables, but if leasables were removed from the Decision Area, payments would be made under the 1902 Reclamation Act and the 1872 Mineral Lands Leasing Act.

Other Impacts*Impacts from Externally Funded Ecosystem Restoration*

Portions of the management actions performed on public lands would be carried out with funds not provided by BLM. Thus these expenditures are not accounted for under the category of general BLM expenditures discussed below. As presented in Chapter 3, recent examples of such projects include the Grouse Creek Restoration Project and the Grande Ronde Model Watershed enclosure fencing project. In addition, a large portion of noxious and invasive weed treatment in the Decision Area is performed by the TCWMA with funding sources not provided by the BLM. These treatments are labor intensive and utilize agricultural and associated businesses contained within the impact area economy. As a result of these treatments, 5 jobs and \$129,000 in labor income are supported annually (see Table 4-19 and Table 4-20). In addition to direct job and income impacts in the agricultural industry, these estimates include impacts to industries that provide factors of production to the agricultural industry, and other industries impacted by wage related spending.

Impacts to Counties

Costs to local governments would remain unchanged as a result of planning actions (i.e., demand for services and infrastructure would not change as a result of BLM planning actions). Any changes under the alternatives in grazing revenues, forest products, and entitlement acreages would not be large enough to significantly affect the overall amount of payment made to counties since these payments make up small portions of county payments by alternative (Table 4-16). Payments In Lieu of Taxes (PILT) provide at least 90 percent of BLM-associated payments to counties under all the alternatives; however, impracticalities exist in predicting congressional budget allocations that impact PILT. Assuming current levels of county payments from public lands will continue, payments would support at least 4 jobs and \$147,000 in labor income in the impact area economy (Table 4-19 and Table 4-20).

Output	Current	Alternative					
		No Action	1	2	3	4	5/5a
PILT	\$170,457	\$170,457	\$170,457	\$170,457	\$170,457	\$170,457	\$170,457
Range revenue	\$7,581	\$8,961	\$8,957	\$9,139	\$8,769	\$7,710	\$6,087
Timber revenue	\$3,610	\$11,490	\$3,591	\$8,378	\$3,591	\$4,189	\$0
Total	\$181,648	\$190,908	\$183,004	\$187,974	\$182,816	\$182,356	\$176,544

Impacts from BLM Expenditures and Employment

Levels of expenditures and employment at the Baker FO of the BLM are not expected to vary as result of the alternatives. While different alternatives may cost more or less to implement, speculating whether the budget will be available is impractical. However this does not mean implementation is impractical, since management priorities are likely to determine how funds are allocated to actions outlined in the RMP. Thus a constant budget over the life of the RMP is a

reasonable and practical assumption, based on the average annual salary and non-salary expenditures presented in Chapter 3. Under all the alternatives, it is estimated that average annual BLM expenditures would continue to support around 55 jobs and \$2.2 million in labor income in the impact area economy (Table 4-19 and Table 4-20).

Impacts from Wind Energy Development

While all land in the Planning Area without surface occupancy or leasing restrictions would potentially be available for wind development (given further site-specific review), not all land could be considered suitable for development. Developable land depends on the resource and transmission line availability and capacity. Decisions to invest in wind energy are also dependent on the cost of alternative sources of energy, as well as the regulatory environment and other costs to society. Natural gas, oil, and coal prices also determine the level of energy investment. The viability of commercial wind power projects also depend on the pricing agreements between power producers and purchasers. All of these components are difficult to predict, which makes speculation on possible development impractical.

However planned, activity that would occur in the Decision Area would be supported under management common to all the alternatives. Horizon Wind Energy's Burnt River project is proposed for a capacity of up to 500 megawatts (MW), using turbines of 1.5 to 5 MW in size. Construction to achieve this capacity could occur over several years and in various stages, and would support approximately 3,100 jobs and \$119 million in labor income in the impact area economy. Operation and maintenance of this facility at full capacity would support approximately 57 jobs and \$2.0 million in labor income on an average annual basis in the impact area economy.

Payments to counties from wind development can be a substantial source of revenue that supports county operations and maintenance. Taxes on the assessed value of property alone for this project would support 52 jobs and \$2 million in labor income on an average annual basis. This estimate includes the direct, indirect, and induced effect of the payment to counties in the impact area.

As noted above, further speculation beyond planned development in the Decision Area is unrealistic. In addition, costs associated with development on public lands (i.e. site specific planning) could limit project development. In the future, with changes in energy markets, technology, and/or development saturation on available private land, development in the Decision Area may become more likely.

Role of Amenities, Migration and Non-Market Values

The economic analysis assesses the economic effects of the direct use of resources in terms of jobs and income. This type of analysis does not include other types of economic value often referred to as non-market values, which are discussed in Chapter 3. Non-market values are important to the well-being of visitors, area residents, and others outside the Planning Area.

These values include natural amenities, quality of life factors, recreational opportunities, ecosystem services, and non-use values such as existence, options, and bequest values. Non-market values are difficult to quantify and insufficient data exists to assess the effects of management actions. However, the fact that no monetary value is assigned to these values does not lessen their importance in the decision making process.

In addition, helpful inferences can be made. While there is a general consensus that non-use values exist, the methodologies for measuring these values are controversial and difficult to apply. Wilderness has been the subject of numerous non-use studies that are usually conducted for specific natural areas, but no attempt has been made to directly elicit potential non-use values associated with the alternatives under this RMP. The alternatives establish areas to be managed for wilderness characteristics, changes to ACECs, and VRM designations. These designations would further maintain, and perhaps enhance, non-market values associated with natural amenities protected on these lands.

Additionally, these ACECs and managed lands with wilderness characteristics may attract new residents and tourists to the area which would then contribute to area economic activity. Natural amenities and quality of life have been increasingly recognized as important factors in the economic prospects of many rural communities in the West (Rudzitis and Johnson 2000). In addition, non-labor income is intimately tied to natural amenities as discussed in Chapter 3. Rural county population change, the development of rural recreation, and retirement-destination areas are all related to natural amenities (McGranahan, 1999). Thus, designations that maintain and protect natural amenities may similarly contribute to area economic well-being.

No Action Alternative

As a result of the No Action Alternative, about 256 jobs and \$7.4 million in labor income would be generated in the impact area economy on an average annual basis. This would be 25 percent more employment and 21 percent more income than currently contributed, due to larger timber product contributions evaluated under this alternative than levels evaluated under the action alternatives. This estimate is based on the sawtimber ASQ and, thus, reflects an annual average of the maximum available contribution that would be available rather than actual use. This includes direct, indirect, and induced effects as a result of the outputs, county payments and management actions listed in Table 4-14. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government, and Agriculture sectors (See Table 4-17 and Table 4-18).

Sector	Area Total	Current	Alternative						
			No Action	1	2	3	4	5	5a
Agriculture	10,847	35	51	39	47	39	32	26	8
Mining	397	3	3	3	3	3	3	3	3
Utilities	658	0	1	0	0	0	0	0	0
Construction	3,461	2	2	2	2	2	2	2	2
Manufacturing	8,779	5	11	5	9	5	5	2	2

Sector	Area Total	Current	Alternative						
			No Action	1	2	3	4	5	5a
Wholesale Trade	1,416	4	5	5	5	5	5	4	4
Transportation & Warehousing	3,971	4	5	4	5	4	4	4	3
Retail Trade	8,619	22	26	24	25	25	23	22	22
Information	658	1	1	1	1	1	1	1	1
Finance & Insurance	1,835	2	2	2	2	2	2	2	2
Real Estate & Rental & Leasing	1,650	3	3	3	3	3	3	2	2
Prof, Scientific, & Tech Services	2,039	3	4	4	4	4	3	3	3
Management of Companies	121	0	0	0	0	0	0	0	0
Admin, Waste Management & Rem Services	3,167	3	4	3	4	4	3	3	3
Educational Services	452	1	1	1	1	1	1	0	0
Health Care & Social Assistance	7,598	7	10	8	9	8	8	7	6
Arts, Entertainment, and Recreation	1,240	9	10	10	10	11	10	10	10
Accommodation & Food Services	4,791	50	57	56	58	58	55	54	54
Other Services	5,501	5	6	5	6	5	5	4	4
Government	13,663	52	53	53	53	53	53	52	52
Total	80,862	210	256	228	249	233	219	203	182

Sector	Area Total	Current	Alternative						
			No Action	1	2	3	4	5	5a
Agriculture	\$227,840.2	\$600.5	\$1,052.1	\$645.8	\$898.6	\$641.6	\$528.1	\$371.6	\$184.6
Mining	\$21,604.3	\$135.5	\$137.6	\$137.5	\$138.1	\$138.3	\$137.1	\$137.0	\$136.8
Utilities	\$85,073.5	\$47.8	\$60.8	\$51.7	\$58.1	\$52.7	\$50.4	\$44.7	\$40.3
Construction	\$152,646.6	\$85.8	\$91.1	\$88.2	\$90.5	\$88.9	\$87.3	\$85.2	\$82.8
Manufacturing	\$469,151.1	\$211.1	\$509.1	\$219.4	\$397.1	\$222.6	\$238.6	\$84.2	\$80.9
Wholesale Trade	\$65,415.8	\$195.6	\$234.2	\$217.8	\$233.1	\$225.8	\$212.8	\$202.0	\$194.6
Transportation & Warehousing	\$240,542.1	\$193.3	\$244.3	\$213.0	\$236.5	\$218.8	\$207.2	\$186.7	\$168.7
Retail Trade	\$223,952.1	\$466.8	\$541.9	\$512.6	\$541.7	\$530.0	\$501.1	\$484.8	\$475.8
Information	\$27,877.7	\$40.7	\$48.8	\$44.6	\$48.1	\$45.9	\$43.5	\$40.9	\$39.0
Finance & Insurance	\$79,539.3	\$75.8	\$96.0	\$82.4	\$92.1	\$84.4	\$80.3	\$72.3	\$66.7
Real Estate & Rental & Leasing	\$32,343.9	\$51.6	\$61.8	\$56.4	\$60.7	\$57.4	\$54.3	\$49.7	\$42.1
Prof, Scientific, & Tech Services	\$72,776.9	\$99.7	\$121.8	\$109.0	\$118.7	\$110.9	\$104.0	\$94.7	\$80.0
Management of Companies	\$5,053.3	\$5.9	\$7.5	\$6.5	\$7.3	\$6.7	\$6.4	\$5.8	\$5.7
Admin, Waste Management & Rem Service	\$113,651.3	\$64.6	\$77.6	\$70.9	\$76.5	\$73.0	\$69.0	\$64.8	\$61.1
Educational Services	\$4,701.7	\$5.2	\$6.5	\$5.5	\$6.2	\$5.6	\$5.4	\$4.9	\$4.6
Health Care & Social Assistance	\$265,406.4	\$263.8	\$325.4	\$279.7	\$311.1	\$284.7	\$273.0	\$250.2	\$238.2
Arts, Entertainment, and Recreation	\$12,790.2	\$105.5	\$119.2	\$118.1	\$121.9	\$123.1	\$115.4	\$114.4	\$113.8
Accommodation & Food Services	\$77,357.5	\$822.4	\$926.5	\$922.9	\$950.3	\$962.9	\$902.5	\$896.3	\$892.9
Other Services	\$95,657.8	\$93.5	\$117.6	\$101.7	\$113.2	\$104.3	\$99.3	\$90.0	\$83.9
Government	\$796,285.8	\$2,540.2	\$2,620.7	\$2,615.2	\$2,637.3	\$2,644.6	\$2,599.3	\$2,592.0	\$2,585.6
Total	\$3,069,667.4	\$6,105.3	\$7,400.5	\$6,498.9	\$7,137.1	\$6,622.3	\$6,314.9	\$5,871.8	\$5,578.2

Impacts from Recreation

In general, recreation use would continue to increase by 1.4 percent per year for local users and two percent per year for non locals, based on rates of visitation observed in the past and projected population growth (Portland State University 2004; State of Washington 2007). Given this increase, average annual recreation visits are estimated at 184,915 general visits and another 61,636 wildlife related visits (Table 4-14). Expenditures of these visitors would support approximately 116 jobs and \$\$2.9 million in labor income in the impact area economy on an average annual basis.

Impacts from Livestock Grazing

The No Action Alternative would authorize average annual grazing of approximately 54,697 cattle AUMs and 740 sheep AUMs (Table 4-14) and would support approximately 30 jobs and \$430,000 in labor income (Table 4-19 and Table 4-20). While these contributions are higher than current contributions from grazing, it must be noted these are impacts from the established level of authorized use for AUMs in the Decision Area. This is the maximum number of AUMs that would be offered under ideal forage conditions which may not be an accurate portrayal of actual impacts. Factors such as drought, financial limitations on operators, market conditions, and implementation of grazing practices to improve range conditions are important to consider.

The benefit of BLM forage to area operators under the No Action Alternative would be approximately \$574,000. Thus, despite the relatively small employment and labor income impacts, the value of forage to area operators would remain.

Impacts from Forest Products

The No Action Alternative would allow an average annual harvest of approximately 2,400 MBF of sawtimber (Table 4-14). As stated above, this estimate is based on the sawtimber ASQ and reflects an annual average of the volume that would be available rather than actual harvest projections. Annual average harvest has been approximately 31 percent of this estimate. If harvests were to occur at ASQ levels, approximately 42 jobs and \$1.3 million in labor income would be supported within the local economy (Table 4-19 and Table 4-20). In addition to direct job and income impacts in the forest products industry, these estimates include impacts to industries that provide factors of production to the forest products industry and other industries impacted by wage related spending.

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under the No Action Alternative would continue to allow current levels of use described in Table 4-14. Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels Management

Current fuel treatment levels would continue under the No Action Alternative. On average, 9,000 acres have been treated with prescribed fire and another 9,000 have been treated mechanically since the current Baker RMP (BLM 1989) (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected. Fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where fuels have not been treated. For example, fires generally burn hotter and flame lengths are higher in non-treated areas (BLM 2007). Since treatment levels would be less under the No Action Alternative than the other alternatives (Table 4-15), risk and associated costs under this alternative could be greater than the action alternatives.

Other Impacts*Externally Funded Ecosystem Restoration*

Restoration projects and the TCWMA's weed abatement program in the Decision Area would continue under this alternative. Thus, effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on public lands coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under the No Action Alternative, annual payments to counties in the Planning Area would be approximately \$191,000, which includes a portion of PILT payments that can be attributed to BLM entitlement acreage, a portion of payments received from grazing revenues, and a portion of timber revenues (Table 4-16). These payments would support about 4 jobs and \$154,000 in labor income (Table 4-19 and Table 4-20). Payments to counties and their impacts under this alternative would be slightly higher than the other alternatives, since the level of grazing is based on the estimated level of authorized use for AUMs and the timber harvest level is based on ASQ. As discussed above, this represents the maximum number of AUMs that could be offered under ideal forage conditions, which may not be an accurate portrayal of actual impacts. Similarly, as stated above, ASQ reflects an annual average of the volume that would be available rather than actual harvest projections. Regardless, contributions from these payments are only slightly higher than the other alternatives given the large dependence of these payments on PILT.

Resource	Current	Alternative						
		No Action	1	2	3	4	5	5a
Recreation ²	103	116	117	119	122	114	114	114
Grazing	26	30	30	31	30	26	21	0
Forest Products	13	42	13	31	13	15	0	0
Minerals	4	4	4	4	4	4	4	4
Externally Funded	5	5	5	5	5	0	5	5
County Payments	4	4	4	4	4	4	4	4
BLM Expenditures	55	55	55	55	55	55	55	55
Total BLM Management	210	256	228	249	233	219	203	182
Percent Change from Current		22%	8%	18%	11%	4%	-4%	-14%

¹Average annual values are based on projected impacts over the 10-year analysis period. Source: Potential employment and labor income impacts are based on the estimated resource outputs summarized by alternative in Table 4-14. Potential impacts were estimated using the IMPLAN model and FEAST.

²As discussed in Chapter 3, these recreation estimates do not include visits from local use since their expenditures do not represent new money into the economy.

Resource	Current	Alternative						
		No Action	1	2	3	4	5	5a
Recreation	\$2,581	\$2,881	\$2,910	\$2,976	\$3,043	\$2,846	\$2,846	\$2,846
Grazing	\$365	\$430	\$430	\$439	\$421	\$370	\$292	\$0
Forest Products	\$422	\$1,344	\$420	\$980	\$420	\$490	\$0	\$0
Minerals	\$156	\$156	\$156	\$156	\$156	\$156	\$156	\$156
Externally Funded	\$129	\$129	\$129	\$129	\$129	\$0	\$129	\$129
County Payments	\$147	\$154	\$148	\$152	\$148	\$147	\$143	\$141
BLM Expenditures	\$2,306	\$2,306	\$2,306	\$2,306	\$2,306	\$2,306	\$2,306	\$2,306
Total BLM Management	\$6,105	\$7,400	\$6,499	\$7,137	\$6,622	\$6,315	\$5,872	\$5,578
Percent Change from Current		21%	6%	17%	8%	3%	-4%	-9%

BLM Expenditures and Employment

As discussed above under Impacts Common to all Alternatives, BLM expenditures and employment are assumed to be the same under all the alternatives. Direct, indirect, and induced effects from these contributions are displayed in Table 4-19 and Table 4-20.

Role of Amenities, Migration and Non-market Values

Areas of Critical Environmental Concern may attract new residents and tourists to the area, which would then contribute to area economic activity. In addition, these designations would further maintain and perhaps enhance non-market values associated with natural amenities protected on these lands. Under the No Action Alternative, less land would be managed under these special designations than under all the action alternatives except Alternative 2. As a result, this alternative would ensure less protection of non-market values and natural amenities than the

action alternatives, with the exception of Alternative 2 (Table 4-21). Consequently, well-being associated with non-market values and potential contributions from new residents and tourists attracted by natural amenities could be less than the action alternatives, with the exception of Alternative 2.

Table 4-21. ACEC, WSR, and Lands with Wilderness Characteristics

	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5/5a
ACEC acreage	48,153	83,756	34,419	47,992	93,991	93,991
Least to most area designated (1 to 5)	3	4	1	2	5	5
WSR Recommendation	N/A	Joseph Creek would be recommended to Congress for designation into the NWSRS	Joseph Creek would not be recommended to Congress for designation into the NWSRS	Same as Alternative 1		
Least to most area recommended for designation (0 to 1)	0	1	0	1		
Lands with Wilderness characteristics	N/A	Identified lands with wilderness characteristics would be protected	Identified lands with wilderness characteristics would not be protected	Same as Alternative 1		
Least to most area protected (0 to 1)	0	1	0	1		

Impacts Common to all Action Alternatives

Impacts from BLM management under most of the action alternatives (apart from Alternative 5) could support higher levels of employment and labor income than currently experienced, but less than the No Action Alternative (see Table 4-19 and Table 4-20). The largest employment and labor income effects would occur in the Accommodations & Food Services, Government, Agriculture, and Retail Trade sectors (see Table 4-17 and Table 4-18). Impacts associated with grazing and forest products are speculative considering differences in authorized and actual use levels determined by future market conditions. While levels of AUMs used could decrease under the action alternatives with voluntary relinquishment and closure of some allotments, efficiency gains could result as conflicts are resolved and non-market values are enhanced.

Impacts from Recreation

Estimates portray decreases and increases in use levels associated with anticipated changes to recreation experiences offered under the different alternatives. Regardless of actions that would close areas with no “legal” public access to motorized use, recreation visitation in the Decision Area is anticipated to increase on an average annual basis over the life of the RMP (see assumptions discussed above). With these changes in management and increased recreation use

on BLM, the action alternatives would support at least 114 jobs and \$2.8 million in labor income on an average annual basis (Table 4-19 and Table 4-20). Recreation provides larger contributions to area jobs and labor income than BLM grazing, forest products, and mineral programs under all the action alternatives.

As discussed previously, jobs and income associated with the action alternatives should not outweigh the value of BLM recreation experiences. With the SRMAs and motorized use changes under the action alternatives, BLM management would likely be more commensurate with desired recreational experiences. For example, certain motorized user segments would benefit from opportunities specifically catered to their interests, such as areas designated for single track, rock crawling, and competitive events that did not exist previously. Additionally, as conflicts between non-motorized and motorized users are resolved, desired recreation experiences are likely to improve. Thus, the value of recreation experience under the action alternatives could be more than is currently experienced, while associated jobs and income could be less (Table 4-19 and Table 4-20).

Impacts from Grazing

Despite closure of some allotments, the action alternatives could accommodate either current levels or an increase in average annual employment and labor income over the current situation. This may be less likely, given historic trends in actual use of AUMs (see in Chapter 3 Table 3.64. Annual AUM Authorizations in the Planning Area). Nonetheless, if demand for AUMs existed and market conditions were favorable, the contribution from BLM grazing could increase.

The benefit of forage to area ranchers could potentially decrease from the No Action Alternative. However, it must be noted that efficiency gains may be realized as conflicts are resolved by decisions that limit grazing in areas of resource and recreation conflict. For example, ranchers might find more time to tend to their herds with a decreased incidence of conflict in areas of heavy recreation use.

Impacts from Forest Products

The vegetative treatments proposed under all alternatives would tend to reduce the occurrence and severity of wildfire events. These treatments would reduce the severe levels of tree mortality and site damage that are experienced during large scale, stand-replacing events, and would reduce the amount of salvage volume available from such events in the future. The treatments, which would be intended to reduce the severity of wildfire events, would also supply future forest products, providing local employment and labor income.

While PSQ varies amongst the action alternatives, current levels of fuelwood, post and poles would also be available under all the action alternatives.

Impacts from Fire and Fuels Management

Fuel treatment levels under the action alternatives would be same or greater than experienced currently under the No Action Alternative (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected. However, it is commonly accepted that fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated in comparison to areas where fuels have not been treated. Since treatment levels would be less under the No Action Alternative than the action alternatives (Table 4-15), risk and associated costs would be reduced under the action alternatives.

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under the action alternatives would continue to allow current levels of use shown in Table 4-14. Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Other Impacts*Impacts to Counties*

The proposed alternatives would sustain a lower level of payments (Table 4-16) to counties given the lower level of forest product and AUMs offered (Table 4-14). However the low level of dependency of these payments on forest product and grazing revenues would continue (the share of BLM payments from forest products and grazing revenues does not exceed 10 percent under the action alternatives) and, thus, the impacts to impacted counties are smaller than the No Action Alternative (Table 4-19 and Table 4-20).

This RMP revision proposes increasing the number of acres zoned as Z-3; however, while the identification of this land as Z-3 makes disposal possible, it is not guaranteed.⁶ Further site-specific NEPA processes not covered under this RMP would evaluate the availability of this land for disposal if proposed. If this land is disposed, it would no longer count towards the entitlement acreage used in PILT calculations, which could slightly decrease the contribution to county payments from public lands in the area. However, predicting county payments based on entitlement acreage alone is impractical due to changes in the population ceiling, congressionally approved annual appropriation acts, and other factors discussed in Chapter 3. Nevertheless if

⁶ Despite the large amount of land currently classified as Z-3 in the Planning Area, entitlement acreage within the Planning Area actually increased between 1999 and 2008 in several Planning Area counties. See discussion in Chapter 3.

BLM land is disposed, it would be subject to property taxes, whereas prior to being disposed it would not. Payments under PILT are designed to help offset losses in property taxes due to the nontaxable status of Federal lands within state or county boundaries. Therefore, county property taxes could offset losses from the qualifying entitlement acreage for PILT.

Impacts from BLM Expenditures and Employment

As discussed above under Impacts Common to all Alternatives, BLM expenditures and employment are assumed to be the same under all the alternatives. Direct, indirect, and induced effects from these contributions are displayed in Table 4-19 and Table 4-20.

Alternative 1

Under Alternative 1 the estimated total number of jobs and labor income associated with public lands and resource management would be about 228 and \$6.5 million, respectively (Table 4-19 and Table 4-20). This would be 7 percent more employment and 6 percent more income than currently contributed, but less than under the No Action Alternative and Alternatives 2 and 3 due to lower levels of recreation visitation, grazing and forest products. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government and Agriculture sectors (see Table 4-17 and Table 4-18).

Impacts from Recreation

In spite of the effects of closing areas with no “legal” public access to motorized use, future transportation analysis of appropriate uses would accommodate recreation at levels very similar to the expected rates of increase discussed under the No Action Alternative. In addition to normal rates of growth, increases in amenity values associated with actions promoting increased landscape health under this alternative would attract some additional visitation over the No Action Alternative. These factors would support slightly higher levels of recreation than Alternatives 4 and 5, which would not reopen any areas closed without “legal” access. Thus, visitation would amount to about 187,000 visits per year on an average annual basis throughout the Planning Area (see Table 4-14). Consequent employment and labor income impacts (117 and \$2.9 million, respectively) would be slightly more than experienced under the No Action Alternative and also more than grazing, forest product, and minerals program contributions under this alternative (Table 4-19 and Table 4-20).

Job and income associated Alternative 1 should not overshadow the value of experience that would be provided by recreation in the Decision Area. While the absence of actions that support recreation facilities would result in a decrease in the value of experience for some, improved landscape health and associated recreation amenity values would likely better match the desired recreational experiences of other visitors. As a result, the value of the recreation experience in the Decision Area could actually stay the same or slightly increase compared to the No Action Alternative.

Impacts from Livestock Grazing

Alternative 1 would have a slightly smaller estimated level of authorized use than the No Action Alternative and Alternative 2 and could thus support fewer average annual AUM contributions (Table 4-14). On an average annual basis, estimated authorized use would support 30 jobs and \$430,000 in labor income within the impact area economy (Table 4-19 and Table 4-20). As noted above, these job and employment impacts depict an increase from what is currently contributed from grazing and are contingent on market conditions, operator demand for BLM AUMs, and forage conditions. Regardless, BLM grazing related jobs would continue to remain below one percent of overall agricultural employment and labor income for the area. Levels of employment and income associated with Alternative 1 should not overshadow potential increases in other values as a result of grazing actions under this alternative. For example, grazing adjustments include 5-year rest period if standards are not met (see Section B.3, Livestock Grazing).

The benefit to permittees of low cost BLM forage, which would be below the cost of competitively priced AUMs, would be \$574,000, which is less than the maximum potential benefit under No Action Alternative. However, as noted above, this is greater than the current value (\$485,000) and, if standards are not met, a mandatory rest period could reduce conflict and increase value to other resources.

Impacts from Forest Products

Alternative 1 would provide for harvest of 500 to 1,000 MBF (Table 4-14). This estimate is based on the sawtimber PSQ, rather than actual harvest projections, and reflects the annual volume that would be available if the Baker FO committed to treating 500 acres per year. The remainder of the harvest estimate would consist of fuelwood, posts, and poles (33 MBF). This harvest, if it were to occur, would support on average 13 jobs and \$420,000 in labor income (Table 4-19 and Table 4-20). Based on the PSQ range of forest product offering, the employment and labor income impacts would range from 9 to 18 jobs and \$280,000 to \$560,000 in labor income. This alternative and Alternative 3 offer a smaller average and range than the No Action Alternative, Alternative 2, and Alternative 4 and, thus, would result in smaller consequent impacts. However, only 31 percent of ASQ has been harvested historically. Alternatives 1 and 3 could consequently maintain or increase the number of jobs and labor income supported currently since the range of potential MBF under the offered PSQ could accommodate recent harvests from the Decision Area.

As noted in the Forestry and Woodland Products section, management would focus on improved forest health, which includes treatments to reduce acreage of juniper by 500 to 2,000 acres per year. With favorable market conditions, biomass utilization projects could provide additional jobs and income.

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management Alternative 1 would continue to allow current levels of use, as described in Table 4-14. Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels

Fuel treatment levels under Alternative 1 would be greater than Alternatives 3, 5, and the No Action Alternative (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected, but would be less than under Alternatives 3 and 5 and the No Action Alternative, as fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007). Additionally, risk and associated costs under this alternative could be greater than Alternatives 2 and 4.

Other Impacts

Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA's weed abatement program on public lands would continue under this alternative. As a result, effects would be the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under Alternative 1, annual payments to counties would be approximately \$188,000, which includes a portion of PILT payments that can be attributed to BLM entitlement acreage, a portion of payments received from grazing revenues, and a portion of timber revenues (Table 4-16). These payments would support about 4 jobs and \$156,000 in labor income (Table 4-19 and Table 4-20). Payments to counties and their consequent impacts under this alternative are slightly higher than Alternatives 3, 4, and 5 with higher average timber PSQ and authorized grazing. As discussed above, this represents the maximum number of AUMs that could be offered under ideal forage conditions, which may not be an accurate portrayal of actual impacts. Similarly stated above, the timber payments are based on the sawtimber PSQ, rather than actual harvest projections. Regardless, contributions could be the same as experienced currently, but would likely be less than under Alternative 2.

Role of Amenities, Migration and Non-market Values

Under this alternative, more acreage would be designated as ACECs than Alternatives 2 and 3 and less than Alternatives 4 and 5. In addition, Joseph Creek would be recommended to Congress for designation into the National WSR System, which would provide more designation than would occur under Alternative 2, where it would not be designated. Management of identified lands with wilderness characteristics under this alternative would provide more protection than Alternatives 2, and the same as under Alternatives 3, 4, and 5 (Table 4-21). Therefore, this alternative would ensure more protection of non-market values and natural amenities than Alternatives 2 and 3, since more acres of ACECs, WSRs and land with wilderness character would be managed. Consequently well-being associated with non-market values and potential contributions from new residents and tourists attracted by natural amenities could be more than Alternatives 2 and 3, but less than Alternatives 4 and 5.

Alternative 2

Under Alternative 2 the estimated total number of jobs and labor income associated with BLM land and resource management would be about 249 and \$7 million, which would be 18 percent more employment and 17 percent more income than is currently contributed and more than any of the other action alternatives due to actions that emphasize commercial and commodity uses. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government and Agriculture sectors (See Table 4-17 and Table 4-18).

Impacts from Recreation

Despite the effects of closing areas with no “legal” public access to motorized use, recreation within the Planning Area would increase with improvements to land- and water-based amenities in order to accommodate increased recreation use. These improvements include an OHV play area and improved day-use and overnight facilities. This increase would amount to about 30,000 visits more per year than experienced currently (see Table 4-14). Thus, the employment and labor income impacts (119 and \$3 million, respectively) are more than experienced currently, and are more than grazing, forest products, and minerals programs under this alternative (Table 4-19 and Table 4-20).

Jobs and income associated with this alternative should not overshadow the value of experience provided by recreation on BLM under this alternative. While the effects of closing areas with no “legal” public access to OHVs would result in a decrease in the value of experience for some, improved recreation experiences under this alternative would likely better match the desired recreational experiences of visitors and, thus, the value of recreation experience on BLM could actually increase. For example, the OHV play area could attract motorized users who previously used areas where non-motorized users also recreated. The reduced conflict could increase the value of experience for both sets of users. Additionally, with improved day use and overnight facilities, the value of experience might also increase.

Impacts from Grazing

Alternative 2 would have a higher estimated level of authorized use than the other action alternatives (Table 4-14). This grazing would support approximately 31 jobs and \$439,000 in labor income on an average annual basis (Table 4-19 and Table 4-20). While less than the No Action Alternative, these job and employment impacts depict an increase from what is currently contributed from grazing and are contingent on market conditions, operator demand for BLM AUMs, and forage condition. Jobs related to grazing on public lands would continue to remain below one percent of overall agricultural employment and labor income for the area. In addition, the jobs and income associated with Alternative 2 should not overshadow potential increases in efficiency for individual operators with increased flexibility under this alternative. For example, grazing adjustments through periods of use, grazing systems, rest periods, range improvement projects, or authorized AUM adjustment could be implemented. In addition, the mandatory rest period required if standards are not met under Alternative 1 would not apply under this alternative. In large part, these efficiency gains would be experienced on an individual basis or by the BLM.

The benefit that low cost BLM forage permittees would realize would be below the cost of competitively priced AUMs, and would be approximately \$585,000. Thus, despite the relatively small employment and labor income impacts, the value of forage to area ranchers would remain.

Impacts from Forest Products

Alternative 2 would provide for harvest of 1,000 to 2,500 MBF (Table 4-14). This estimate is based on the sawtimber PSQ, rather than actual harvest projections, and reflects the annual volume that would be available if the Baker FO committed to treating 500 acres per year. The remainder of the harvest estimate would consist of fuelwood, posts, and poles (33 MBF). This harvest, if it were to occur, would support on average 31 jobs and \$980,000 in labor income (Table 4-19 and Table 4-20). Based on the PSQ range of forest product offering, the employment and labor income impacts would range from 18 to 44 jobs and \$560,000 to \$1.4 million in labor income. This alternative offers the largest average and range of all alternatives and, thus, would result in largest impacts. However, it must be noted that only 31 percent of ASQ has been harvested historically. Consequently, Alternative 2 could maintain or increase the jobs and labor income currently supported since the range of potential MBF under the offered PSQ could accommodate recent harvest levels experienced on BLM lands.

As noted in the Forestry and Woodland Products section, management would focus on improved treatments to reduce acreage of juniper if it were economically beneficial. Thus, with favorable market conditions, biomass utilization projects could provide additional jobs and income.

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under this alternative would continue to allow the current levels of use described in Table 4-14.

Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels

Fuel treatment levels under Alternative 2 would be greater than Alternatives 1, 3, 5, and the No Action Alternative (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected; however, Alternative 2 would be less than other alternatives since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007). Additionally, risk and associated costs under this alternative could be greater than Alternative 4.

Other Impacts

Impacts from Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA's weed abatement program on BLM land would continue under this alternative. As a result, effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under Alternative 2 annual payments to counties in the Planning Area would be approximately \$188,000 which includes a portion of PILT payments that can be attributed to BLM entitlement acreage, a portion of payments received from grazing revenues and a portion of timber revenues (Table 4-16). These payments would support about 4 jobs and \$152,000 in labor income (Table 4-19 and Table 4-20). Payments to counties and their impacts are higher under this alternative than the other action alternatives because of higher average timber PSQ and authorized grazing. As discussed above, this represents the maximum number of AUMs that could be offered under ideal forage conditions, which may not be an accurate portrayal of actual impacts. Similarly stated above, the timber payments are based on the sawtimber PSQ and reflect an annual average of the volume that would be available rather than actual harvest projections. Regardless, contributions from these payments would be the same as currently experienced, or perhaps larger with favorable market conditions.

Role of Amenities, Migration and Non-market Values

Under this alternative, less acreage would be designated as ACECs than the other alternatives. In addition, Joseph Creek would not be recommended to Congress for designation into the NWSRS, which would provide less designation than would occur under the other action alternatives. In addition, identified lands with wilderness characteristics would not be protected

(Table 4-21). Therefore, this alternative would provide the least protection of non-market values and natural amenities amongst the alternatives. Consequently, well-being associated with non-market values and potential contributions from new residents and tourists attracted by natural amenities could be less than the other alternatives.

Alternative 3

As a result of Alternative 3, the estimated number of jobs and labor income associated with BLM land and resource management would total about 233 and \$6.6 million, respectively (Table 4-19 and Table 4-20). This would be 11 percent more employment and 8 percent more income than contributed currently, but less than under the No Action Alternative and Alternative 2. Furthermore, there would be lower levels of grazing, forest products, and payments to counties due to the focus on recreation opportunities, as well as the moderate protection and restoration of habitat and connectivity. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government and Agriculture sectors (See Table 4-17 and Table 4-18).

Impacts from Recreation

Despite the effects of closing areas with no “legal” public access to motorized use, future travel and transportation analysis of appropriate uses would accommodate recreation at levels greater than estimated visitation under the other alternatives. Use should increase with promotion of the WSR and more improvements to day-use and overnight facilities. This would amount to about 35,000 more visits yearly than currently experienced and more than under any other alternative (see Table 4-14). Thus, the employment and labor income impacts (122 and \$3 million, respectively) are greater than experienced under the other alternatives (Table 4-19 and Table 4-20).

Jobs and income associated with this alternative should not overshadow the value of experience provided by recreation on BLM. While the effects of closing areas with no “legal” public access to motorized vehicles would result in a decrease in the value of experience for some, improved recreation experiences under this alternative would likely better match the desired recreational experiences of visitors and, therefore, the value of recreation experience on BLM could actually increase. For example, the total value of experience would increase as visitation in the WSR corridor increased with destination-based marketing. The reduced conflict from route designation could increase the value of experience for both sets of users. Furthermore, the additional improvements to day-use and overnight facilities relative to the other alternatives could also increase the value of experience for recreationists.

Impacts from Livestock Grazing

Alternative 3 would have a lower estimated level of authorized use than the No Action Alternative, Alternative 1 and Alternative 2 (Table 4-14) as a result of actions that reduce conflict for recreation uses resulting in lower employment and labor income contributions of

approximately 30 jobs and \$421,000 in labor income (Table 4-19 and Table 4-20). For example, under this alternative grazing would be removed or reduced in areas of high recreational value if there are persistent conflicts with recreational users. In some cases, efficiency gains would be experienced on an individual basis or by BLM as conflicts were reduced. While authorized AUM levels could decrease, ranchers might find more time to tend to their herds with decreased incidence of conflict with other uses. If permittees must use additional capital, or allotments are no longer maintained by the permittees themselves, both they and the BLM might experience efficiency losses as a result of changes under this alternative.

Less grazing would be authorized under this alternative than is currently allowed (Table 4-14). While the six county impact areas exhibit a low level of dependency on BLM forage,⁷ BLM provides a low-cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers likely depend on BLM land for a larger portion of their forage than other producers. Thus, while decreases in grazing from BLM would not appear to impact the overall supply of forage to Planning Area producers, smaller communities and individual operators within the Planning Area could be impacted to a greater degree.

The benefit that low cost BLM forage permittees would realize would be below the cost of competitively priced AUMs, and would be approximately \$561,000. Due to less grazing than experienced currently, permittees and the BLM might experience loss of resource value if permittees must use additional capital, or allotments are no longer maintained by permittees. For example, improvements in resource value from grazing, such as weed control, fuel reduction and range improvement maintenance, would no longer occur. However, increases in other resources values could result with less grazing than experienced currently.

Impacts from Forest Products

Alternative 3 would provide the same amount of forest products as Alternative 1 (Table 4-14). Consequently, the same level of employment and labor income would be supported (Table 4-19 and Table 4-20).

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under this alternative would continue to allow current levels of use described in Table 4-14.

⁷ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (See Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3)

Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels Management

Fuel treatment levels under Alternative 3 would be less than the other action alternatives, but more than currently treated under the No Action Alternative (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected, but would likely be more than the action alternatives and less than the No Action Alternative since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007).

Other Impacts

Impacts from Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA's weed abatement program on BLM land would continue under this alternative. Therefore, effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under Alternative 3, annual payments to counties in the Planning Area would be approximately \$183,000, which includes a portion of PILT payments that can be attributed to BLM entitlement acreage, a portion of payments received from grazing revenues, and a portion of timber revenues (Table 4-16). These payments would support about four jobs and \$148,000 in labor income (Table 4-19 and Table 4-20). Payments to counties and their impacts would be slightly higher under this alternative than Alternatives 4 and 5 and would have slightly higher average timber PSQ. Contributions from these payments would be slightly less than experienced currently due to payments associated with authorized levels of grazing below current levels.

Role of Amenities, Migration and Non-market Values

Under this alternative, less acreage would be designated as ACECs than Alternatives 1, 4, or 5, and the same amount of acreage would be recommended for WSR designation and managed for wilderness characteristics as under Alternative 1 (Table 4-21). Therefore, this alternative would provide less protection of non-market values and natural amenities than Alternatives 1, 4, or 5. Consequently, well-being associated with non-market values and potential contributions from new residents and tourists attracted by natural amenities could be less than Alternatives 1, 4, and 5, but greater than both Alternative 2 and the No Action Alternative.

Alternative 4

Under Alternative 4, the estimated number of jobs and labor income associated with BLM land and resource management would total approximately 219 and \$6.3 million annually (Table 4-19 and Table 4-20). This would be 4 percent more employment and 3 percent more income than contributed currently, but would be lower than Alternatives 1, 2, and 3 due to lower levels of recreation use, authorized grazing, forest products, and county payments. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government, and Agriculture sectors (See Table 4-17 and Table 4-18).

Impacts from Recreation

The effects of closing areas with no “legal” public access to motorized use would affect both motorized and non-motorized recreation use due to limits on access for all user groups. Regardless, baseline use within the Planning Area should increase, with expected annual rates of recreation increases outlined in the assumptions above. In addition, this alternative would focus on features that attract low impact recreation activities. This would amount to about 19,000 more visits per year than occur currently (see Table 4-14), which would be less than the other alternatives but the same as Alternative 5. Thus, the employment and labor income impacts (114 and \$2.8 million, respectively) would be more than currently experienced, less than the other alternatives, and the same as Alternative 5 (Table 4-19 and Table 4-20).

Job and income associated with this alternative should not overshadow the value of experience provided by recreation on BLM under this alternative. While the effects of closing areas with no “legal” public access to motorized vehicles would result in a decrease in the value of experience for some, increased value of experience could result for those interested in low-impact recreation activities. However, the effect of reduced access on both motorized and non-motorized recreation would likely correspond to a smaller total value of recreation experience relative to the other alternatives.

Impacts from Livestock Grazing

Alternative 4 would have a lower estimated level of authorized use than the No Action Alternative and Alternatives 1, 2, and 3 (Table 4-14), resulting in lower employment and labor income contributions (Table 4-19 and Table 4-20). These lower contributions would result as a consequence of unique actions intended to protect other resource values. For example, if rangeland health standards are not met, grazing would not be authorized in that pasture. Resulting losses to permittees or use of additional capital would be experienced on an individual basis. These resource protection measures could increase value to other resources. However, permittees and the BLM might also experience efficiency losses as a result of changes under this alternative if permittees must use additional capital or allotments are no longer maintained by permittees.

Less grazing would be authorized under this alternative than is currently allowed (Table 4-14). While the six county impact area exhibits a low level of dependency on BLM forage,⁸ BLM provides a low cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers likely depend on BLM land for a larger portion of their forage than other producers. Thus, while decreases in grazing on BLM land would not appear to impact the overall supply of forage to Planning Area producers, smaller communities and individual operators within the Planning Area could be impacted to a greater degree.

The benefit that low-cost BLM forage permittees would realize would be below the cost of competitively priced AUMs, and would be approximately \$494,000. With less grazing than currently experienced, permittees and the BLM might experience loss of resource value if permittees must use additional capital or allotments are no longer maintained by permittees. For example, improvements in resource value from grazing, such as weed control, fuel reduction, and range improvement maintenance would no longer occur. However, increases in other resources values could result with less grazing than experienced currently.

Impacts from Forest and Woodland Products

Alternative 4 would provide for harvest of 500 to 1,250 MBF (Table 4-14). This estimate is based on the sawtimber PSQ, rather than actual harvest projections, and reflects the annual volume that would be available if the Baker FO committed to treating 750 acres per year. This harvest, if it were to occur, would support on average 15 jobs and \$490,000 in labor income (Table 4-19 and Table 4-20). Based on the PSQ range of forest product offering, the employment and labor income impacts would range from 9 to 22 jobs and \$280,000 to \$700,000 in labor income. This alternative offers a slightly larger average and range than Alternatives 1 or 3 and, thus, results in larger impacts. However, it must be noted that only 31 percent of ASQ has been harvested historically. Consequently Alternative 4 could maintain or increase the jobs and labor income supported currently, since the range of potential MBF under the offered PSQ could accommodate recent harvests levels experienced on BLM.

As noted in the Forestry and Woodland Products section, treatment would reduce juniper by 1,500-3,000 acres per year. Thus, with favorable market conditions, biomass utilization projects could provide additional jobs and income.

⁸ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (see Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3).

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under this alternative would continue to allow current levels of use described in Table 4-14. Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels Management

Fuel treatment levels under Alternative 4 would be greater than the other action alternatives and the No Action Alternative (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected. However, these would likely be less than the other alternatives, since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007).

Other Impacts*Impacts from Externally Funded Ecosystem Restoration*

Restoration projects and the TCWMA's weed abatement program on BLM land would continue under this alternative. Therefore, effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under Alternative 4 annual payments to counties in the Planning Area would be approximately \$182,000, which includes a portion of PILT payments that can be attributed to BLM entitlement acreage, a portion of payments received from grazing revenues, and a portion of timber revenues (Table 4-16). These payments would support about 4 jobs and \$147,000 in labor income (Table 4-19 and Table 4-20). Payments to counties and their impacts are higher under this alternative than Alternative 5, but lower than the other alternatives. Contributions from these payments would be less than experienced currently with payments associated with authorized grazing levels below current levels of use.

Role of Amenities, Migration and Non-market Values

Under this alternative, the same amount of ACECs, WSRs, and land with wilderness characteristics would be managed as under Alternative 1 (Table 4-21). Thus, the effects are the same as discussed under Alternative 1.

Alternative 5

Under Alternative 5, the estimated number of jobs and labor income associated with BLM land and resource management would total approximately 203 and \$5.9 million annually (Table 4-16 and Table 4-19). This would be 4 percent less employment and labor income than contributed currently due to lower levels of recreation use, grazing, and the absence of sawtimber PSQ. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government, and Retail trade sectors (See Table 4-17 and Table 4-18).

Impacts from Recreation

The effects of recreation management on employment, labor income, and the value of recreation experience would be the same under this alternative as described above under Alternative 4.

Impacts from Livestock Grazing

Under Alternative 5, less grazing would be authorized than is both currently used and would be used under the other alternatives (Table 4-14). Consequently, employment and labor income contributed would be less than the other alternatives, except Alternative 5a (Table 4-19 and Table 4-20). While the six county impact area exhibits a low level of dependency on BLM forage,⁹ BLM provides a low cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers within the Planning Area likely depend on BLM for a larger portion of their forage. Thus, while decreases in grazing from BLM would not appear to impact the overall supply of forage to Planning Area producers, smaller communities and individual operators within the Planning Area could be impacted to a greater degree.

The benefit that low-cost BLM forage permittees would realize would be below the cost of competitively priced AUMs, and would be approximately \$390,000. Permittees and the BLM might experience loss of resource value due to less grazing if permittees must use additional capital or allotments are no longer maintained by permittees. For example, improvements in resource value from grazing such as weed control, fuel reduction, and range improvement maintenance would no longer occur. However, increases in other resources values could result with less grazing than experienced currently.

⁹ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (see Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3).

Impacts from Forest and Woodland Products

This alternative would treat 250 acres per year using only hand methods, PCT, and/or prescribed fire. No commercial, sanitation, or salvage harvesting would be done and, therefore, no PSQ would be available (Table 4-14). Consequently, employment and income levels contributed currently from BLM forest products would no longer be supported (Table 4-19 and Table 4-20).

While the entire six county impact area exhibits a low level of dependency on timber from BLM land (see forest products discussion in the Socioeconomics section of Chapter 3), timber removed from BLM land in the Planning Area may provide an important resource when other sources are scarce (JKA 2006). In addition, within impact area counties, shares of employment and labor income attributable to the Forestry and Logging sector and the Wood Products and Processing sector showed varying degrees of specialization in 2006.¹⁰ Consequently, employment and income supported by BLM forest products could be more important for industries within these counties.

Impacts from Mineral Resources

As discussed above under Impacts Common to all Alternatives, mineral resource management under this alternative would continue to allow the current levels of use described in Table 4-14. Contributions to employment and income from this use would provide approximately 4 jobs and \$156,000 in labor income on an average annual basis (Table 4-19 and Table 4-20).

Impacts from Fire and Fuels Management

Fuel treatment levels under Alternative 5 would be greater than Alternative 3 and the No Action Alternative, but less than the other action alternatives (Table 4-15). Associated wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected, but would likely be less than Alternative 3 and the No Action Alternative and more than the other action alternatives, since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007).

¹⁰ The shares of total employment and labor income within Baker County attributable the Wood Products and Processing sector accounted for 5.7 and 5.1 percent while Union County contained 4.8 and 6.8 percent of employment and labor income in this sector in 2006 (See Chapter 3, Table 3.63).

Other Impacts

Impacts from Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA's weed abatement program on BLM land would continue under this alternative. Therefore, the effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Under Alternative 5, annual payments to counties in the Planning Area would be approximately \$177,000, which includes a portion of PILT payments that can be attributed to BLM entitlement acreage and a portion of payments received from grazing revenues (Table 4-16). Payments to counties and their impacts are lower under this alternative than the other action alternatives, due to the absence of commercial forest product offerings and less grazing on BLM. These payments would support about 4 jobs and \$143,000 in labor income (Table 4-19 and Table 4-20). This would be slightly less than experienced currently due to payments associated with authorized grazing levels being below current levels of use.

Role of Amenities, Migration and Non-market Values

Under this alternative, the same amount of ACECs, WSRs, and land with wilderness characteristics would be managed as under Alternative 1 (Table 4-21). Consequently, this alternative would provide the same amount of protection of non-market values and natural amenities as described above under Alternative 1. In addition, well-being associated with non-market values and potential contributions from new residents and tourists attracted by natural amenities would also be the same.

Alternative 5a

Under Alternative 5a the estimated number of jobs and labor income associated with BLM land and resource management would total approximately 182 and \$5.6 million annually (Table 4-16 and Table 4-19). This would be 13 and 9 percent less employment and labor income than contributed currently, due to lower levels of recreation use and the absence of grazing and sawtimber PSQ. The largest employment and labor income effects would occur in the Accommodations & Food Services, Government, and Retail trade sectors (See Table 4-17 and Table 4-18).

Impacts from Livestock Grazing

No grazing would be authorized under Alternative 5a (Table 4-14). While the six county impact area exhibits a low level of dependency on BLM forage,¹¹ BLM provides a low cost and important complement to some livestock producers' grazing, forage, and hay production. In addition, individual counties and livestock producers within the Planning Area likely depend on BLM for a larger portion of their forage. Thus, while the removal of grazing from BLM in the Planning Area would not appear to impact the overall supply of forage to Planning Area producers, smaller communities and individual operators within the Planning Area could be impacted to a greater degree.

Permittees and the BLM might experience loss of resource value due to the absence of grazing if permittees must use additional capital or allotments are no longer maintained by permittees. For example, improvements in resource value from grazing such as weed control, fuel reduction, and range improvement maintenance would no longer occur. However, there could be increases in other resources values with the absence of grazing.

c. Impacts to Social Conditions

The social analysis focuses on changes to social and economic well-being as it relates to the quality of life of those individuals and communities identified in Chapter 3. While many of the potential changes in quality of life can only be discussed qualitatively, several indicators provide an approach to discuss the magnitude of effects to these communities. Table 4-22 lists these indicators and provides a comparison amongst the alternatives for communities.¹² Comments from the RMP planning process and the JKA report provided specific information pertaining to the concerns of individuals and groups interested in this plan. All comments were examined and general categories were formed from common themes pertaining to community connections and interests in BLM management. The seven communities of interest identified include individuals and groups interested in recreation, access, lands and realty, ranching, traditional uses, resource uses, and resource protection. These are described in Chapter 3, while the effects to these communities are discussed below.

¹¹ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (see Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3).

¹² Changes in indicators do not imply the same change in quality of life for all communities since marginal changes in quality of life relative to the indicators cannot be considered equal amongst communities. For example the change in quality of life associated with more access for a communities interested in recreation is different than the change in access for those interested in ranching.

Table 4-22. Social Indicators per Alternatives

Social Indicator	Current	Alternative						
		No Action	1	2	3	4	5	5a
Recreation (visits)	225,000	246,553	249,029	254,623	260,352	243,569	243,569	243,569
Cattle and Sheep (AUMs)	38,010	55,437	41,500	46,750	35,500	30,700	22,500	0
Forest Products (MBF)	750	2,400	500-1,000	1,000-2,500	500-1,000	500-1,250	0	0
Fuels treatment (acres)	18,000	18,000 ¹	70,000	80,000	60,000	110,000	65,000	65,000
Payments to counties	\$181,648	\$190,908	\$183,004	\$187,974	\$182,816	\$182,356	\$176,544	\$181,648
Special designation (acres)	48,153	48,153	95,441	46,241	49,579	95,441	95,441	95,441

¹Assuming current levels of fuels treatment continue under the No Action Alternative.

Impacts Common to all Alternatives

The following social analysis assesses the potential effects of management actions common to all the alternatives on communities identified in Chapter 3. Higher employment, subject to some qualifications, can be seen as a benefit to the local community. Other benefits are also present, although some are not easily measured or tied to economic activity. An example of where effects are difficult to quantify are equity effects or impacts to social values. Regardless, these benefits are discussed despite our inability to quantify them.

Impacts from Mineral Resources

Under all alternatives, current levels of mineral material removal would be accommodated (Table 4-14). Employment and income generated from these activities would continue to support quality of life. While the pumice and stone is collected under free use permits, the value of this use would remain under all the alternatives as these materials are used to improve and maintain area infrastructure, such as aggregate for road resurfacing.

Impacts from Travel and Transportation

Under all alternatives, individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Baker FO.

Other Impacts

Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to identify and address disproportionately high

and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations. This EO further stipulates that agencies conduct their programs and activities in a manner that does not have the effect of excluding persons from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color, or national origin.

All alternatives could result in increases in employment and labor income relative to current conditions over the next decade, from which minority and low income populations may benefit.

As noted above, access to subsistence uses, traditional materials, and cultural sites would be accommodated under all the alternatives. Access to these materials and sites would continue to provide valuable resources to communities in the area by sustaining lifestyles, traditions, ceremonies and the heritage that remain an important part of the community lifestyle and well-being of the area.

Additionally, public involvement efforts for this project have been inclusive and the agency has considered input from persons or groups regardless of race, color, national origin, income, or other social and economic characteristics.

Externally Funded Ecosystem Restoration

As noted in the JKA report, of particular concern is the ability of BLM to support the current weed abatement program, which has been an effective, multi-stakeholder effort with strong community support. Management actions under all the alternatives would allow the treatment of noxious and invasive weeds with both herbicidal and non-herbicidal control methods. As discussed under the Community Resiliency section of Chapter 3, Community resiliency and well-being are tied to the resources and assets available to area communities and are maintained by the control of noxious and invasive weeds. Employment and labor income provided by control efforts would continue to support area economic well-being and quality of life. In addition, the protection of resource values would further maintain, and potentially improve, the quality of life for communities interested in recreation, resource protection, traditional uses, subsistence uses, grazing, and the use of other resources that are threatened by the spread of noxious and invasive weeds.

Impacts to Counties

Under all the alternatives, the large dependence of county payments on PILT attributable to BLM entitlement acreage means that county payments do not vary significantly (Table 4-22), and that employment and income impacts do not vary substantially (approximately 4 jobs and from \$141,000 to \$154,000 in labor income). Thus, county programs and infrastructure supported by these payments would not differ substantially amongst the alternatives. Consequently, economic well-being and quality of life of those dependent on these contributions would likely remain the same under the alternatives.

Impacts from BLM Expenditures and Employment

Under all the alternatives, it is assumed the level of expenditures and employment at the Baker FO would not vary and, therefore, neither would employment and income. Thus, economic well-being and quality of life of those dependent on these contributions would likely remain the same under the alternatives.

Role of Amenities, Migration and Non-market Values

As noted in Chapter 3, individuals and groups interested in resource protection are aware of how the unique, natural environment contributes to their current and future social and economic well-being. Concerns such as the negative impacts from damaged visual quality, invasive species, and maintenance of special area designations are held by communities interested in resource protection and traditional uses.

The alternatives establish which lands with wilderness characteristics would be managed to protect such characteristics. They also propose changes to ACEC designations and VRM classifications, and recommend or not recommend WSR eligibility for a segment of Joseph Creek (see Table 4-22). Such management actions and land use allocations would further maintain, and perhaps enhance, non-market values associated with natural amenities protected on these lands. Natural amenities and quality of life have been increasingly recognized as important factors in many rural communities in the West (Rudzitis and Johnson 2000). Thus the established ACEC and WSRs and the management of lands with wilderness characteristics similarly contribute to the quality of life of communities interested in resource protection. Individuals and groups interested in traditional uses would also see an increase in their quality of life if these designations improve resources important for their cultural, spiritual, or subsistence uses.

*No Action Alternative*Impacts from Recreation

While the No Action Alternative would accommodate existing recreational uses and opportunities important for individuals and groups interested in access and recreation, actions under Alternatives 2, 4, and 5 would close motorized uses with no legal public access. Consequently, some opportunities would no longer be available and visitation under the No Action Alternative would be greater than Alternatives 2, 4, and 5 (Table 4-22). In this manner, the No Action Alternative supports a higher quality of life than these alternatives (2, 4, and 5) for those interested in access and recreation.

Impacts from Livestock Grazing

Under the No Action Alternative, management would continue to support current levels of AUMs authorized. Since only 77 percent of the authorized AUMs were authorized in 2008,

additional AUMs could be granted. However, the number of AUMs authorized depends on factors other than market conditions, such as drought, financial limitations on operators, and implementation of BLM grazing practices to improve range and conditions of other resource values. Ranching has played a historic role in the community and many would like to see this traditional use continue. Under the No Action Alternative, the estimated level of authorized use would be greater than current use (Table 4-22) and, thus, could accommodate higher levels of grazing in the future. In addition, the quality of life of communities interested in ranching and resource use could be higher under this alternative than the other alternatives since the estimated level of authorized use is higher than the other alternatives. Given decreases in resource conditions that some individuals and groups associate with grazing (those individuals and groups who give a priority to resource protection), quality of life could decrease relative to the other alternatives (Table 4-22).

Impacts from Forest Products

Under the No Action Alternative, management would continue to support current levels of forest products under ASQ. ASQ reflects an annual average of the volume that would be available, rather than actual harvest projections. Since, on average 31 percent of ASQ has been harvested, Alternatives 1 through 4 could accommodate existing use and would not change quality of life perceptions held by individuals and groups interested in resource use. Given favorable timber market conditions, additional harvest could be accommodated under these alternatives providing jobs and income and further improving quality of life. Under several alternatives, the minimum possible PSQ would be less than ASQ under the No Action Alternative (Alternatives 1, 3, 4 and 5; see Table 4-22). If PSQ was less than current average harvest, employment and income would be lost and area quality of life would decrease.

Impacts from Fire and Fuels Management

Fuels treatment levels under the No Action Alternative would be the same or less than that under the other alternatives (Table 4-22). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007), fuels treatment under this alternative would likely provide the same or less risk to life and property as the other alternatives. Consequently, a continued threat to quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks.

Impacts from Minerals

Current levels of mineral material removal would be accommodated under the No Action Alternative (Table 4-14). Employment and income generated from these activities would continue to support quality of life. In addition, the exclusion of areas for minerals exploration and development, such as withdrawal in ACECs, would not exceed current levels. Thus, individuals and groups who perceive mineral uses as beneficial or detrimental to resource values

would see their quality of life maintained as mineral uses are not anticipated to change amongst the alternatives.

Impacts from Travel and Transportation

Comments have stated that access across BLM lands is important to continue the recreational, cultural, spiritual, subsistence, and resource uses of public and private lands that some livelihoods depend upon. Closure of motorized access in areas with no “legal” public access would not occur under the No Action Alternative. Consequently, no changes in existing quality of life would be experienced by individuals and groups interested in access across BLM.

Other Impacts

Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA’s weed abatement program on BLM land would continue under this alternative. Therefore, the effects are the same as those described under the Impacts Common to All Alternatives.

Impacts to Counties

Payments to counties associated with grazing and forest products contributed from BLM would be the highest under this alternative than the other alternatives. However, as discussed above under Impacts Common to all Alternatives, these payments depend almost entirely on PILT payments and thus do not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed above under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Under the No Action Alternative, no new ACECs would be established, no protection would be provided for identified lands with wilderness characteristics, and no river segments would be recommended for WSR designation by congress. Thus, fewer acres would receive special management under the No Action Alternative than under all the action alternatives apart from Alternative 2 (see Table 4-22). Therefore, individuals and groups interested in resource protection and traditional uses would associate the No Action Alternative with a decrease in their quality of life relative to Alternatives 1, 3, 4, and 5. In contrast, the higher levels of resource outputs associated with the absence of these designations under the No Action Alternative and Alternative 2 (Table 4-22) would be perceived as an increase to the quality of life of communities interested in resource use.

Alternative 1

Impacts from Recreation

Changes to motorized uses with no legal public access under Alternatives 1, 2, and 3 would accommodate existing use levels seen currently under the No Action Alternative (Table 4-22). In addition to normal rates of growth, increases in amenity values associated with actions promoting increased landscape health under this alternative would attract some additional visitation over the No Action Alternative. Thus, the quality of recreation experience and the quality of life for communities interested in access and recreation would be maintained under this alternative.

Impacts from Livestock Grazing

Alternative 1 would have a smaller estimated level of authorized use than the No Action Alternative and Alternative 2 (Table 4-22) and, therefore, could support fewer authorized AUMs. Under this alternative, rangeland health standards would require a 5-year rest period if resource conflicts existed. These actions could increase cost and decrease grazing output supported by BLM land. Consequently, perceived quality of life would decrease for communities interested in ranching and resource use. However, these measures would provide an increase in other resource values that some individuals consider in conflict with grazing. This would imply an improvement to quality of life for communities interested in resource protection relative the No Action Alternative and Alternative 2, which do not include such measures.

Impacts from Forest and Woodland Products

Under Alternative 1, 500 to 1,000 MBF would be provided under the PSQ (Table 4-22). This alternative and Alternative 3 offer a smaller average and range than the No Action Alternative, Alternative 2, and Alternative 4, and, thus, lower employment and income levels could be supported than currently. If PSQ was less than current average, harvest employment and income would be lost and area quality of life would decrease for those interested in resource use. However, given favorable timber market conditions, additional harvest could be accommodated under these alternatives, providing jobs and income and further improving quality of life.

Impacts from Fire and Fuels Management

Fuels treatment levels under Alternative 1 would be greater than Alternatives 3, 5, and the No Action Alternative (Table 4-22). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007), fuels treatment under this alternative would likely provide the same or less risk to life and property than these alternatives. Consequently improved quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks.

Impacts from Minerals

Current levels of mineral material removal would be accommodated under Alternative 1 (Table 4-14). Employment and income generated from these activities would continue to support quality of life. However, the exclusion of areas for minerals exploration and development, such as withdrawal in ACECs, would be higher than the No Action Alternative, Alternatives 2, and Alternative 3 (Table 4-21). Thus, individuals and groups whose quality of life depends on current material removed from BLM would not change. Others could perceive a decrease in quality of life associated with decreased potential for development in withdrawn areas compared to under the No Action Alternative, Alternatives 2, Alternative and 3.

Impacts from Travel and Transportation

Comments have stated that access across BLM land was important to continue recreational, cultural, spiritual, subsistence, and resource uses of public and private lands that some livelihoods depend upon. Closure of motorized access in areas with no “legal” public access under this alternative would result in a decrease in quality of life for individuals and groups interested in access. Under Alternative 1, closure would be temporary for many areas until legal access is gained and areas are analyzed for appropriate types of use. Thus, decreases in quality of life would be temporary under this alternative for some users. However, for others, access across BLM land would not be reinstated, which would imply a permanent decrease in their perceived quality of life.

Other Impacts*Impacts from Externally Funded Ecosystem Restoration*

Restoration projects and the TCWMA’s weed abatement program on BLM land would continue under this alternative. As a result, the effects are the same as those described under Impacts Common to All Alternatives.

Impacts to Counties

Payments to counties and consequent effects under this alternative are discussed above under Impacts Common to all Alternatives. These payments depend almost entirely on PILT payments and do not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed above under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Under Alternative 1, more acreage would be designated as ACECs than under the No Action Alternative, Alternative 2, and Alternative 3 (and would designate the same amount as Alternatives 4 and 5; Table 4-22). In addition, Joseph Creek would be recommended to Congress for designation into the NWSRS, which would provide more designation than would occur under Alternative 2, where it would not be designated. Protection of identified lands with wilderness characteristics under this alternative would provide more protection than Alternative 2, and the same as Alternatives 3, 4, and 5 (Table 4-21). Therefore this alternative would ensure more protection of non-market values and natural amenities than Alternatives 2 and 3 since more acres of ACECs would be designated, the eligible WSR segment recommended to Congress for designation, and the identified lands with wilderness characteristics would be protected. In contrast, lower levels of resource outputs associated with higher designation than under the No Action Alternative, Alternative 2, and Alternative 3 would be perceived as a decrease to the quality of life by those interested in resource use.

Alternative 2**Impacts from Recreation**

Despite the effects of closing areas with no “legal” public access to motorized use, recreation within the Decision Area should increase with improvements to land- and water-based amenities in order to accommodate increased recreation use. These improvements include an OHV play area and improved day-use and overnight facilities. The increases would amount to more annual visits than experienced currently under all action alternatives apart from Alternative 3 (Table 4-22) and would, therefore, increase the quality of life and the quality of recreation experience for individuals and groups interested in recreation. Regardless of an overall increase in recreation visits, some improvement in OHV opportunities, and day-use and overnight facilities, restrictions on recreation (where inconsistent with landscape health and commodity production) would decrease the quality of experience for some recreationists relative to the No Action Alternative and Alternative 3. However, these actions would improve landscape health and commodity production, which would imply increases in quality of life for those interested in resource protection and use.

Impacts from Livestock Grazing

Alternative 2 would have the highest estimated level of authorized use of all the action alternatives (Table 4-22). In addition, when rangeland health standards are not met, a 5-year rest period would not be mandatory but would rely on periods of use, grazing systems, rest periods, range improvement projects or authorized AUM adjustments. These actions could decrease cost and increase grazing output supported by BLM relative to the other action alternatives. Consequently, the perceived quality of life of communities interested in ranching and resource use would be higher than under those alternatives. However, these measures could result in increased conflict with other resource values addressed under the other action alternatives. Thus,

communities interested in resource protection and recreation could experience a decrease in perceived quality of life relative to the other alternatives.

Impacts from Forest and Woodland Products

Alternative 2 would provide for harvest of 1,000 to 2,500 MBF (Table 4-22). This alternative offers the largest average harvest and range of PSQ than the other alternatives. As a result, greater employment and income levels could be supported than are currently. However, only 31 percent of ASQ has been harvested historically. If PSQ was less than current average harvest, employment and income would be lost and area quality of life would decrease for those interested in resource use. Conversely, given favorable timber market conditions, more harvest than the other action alternatives could be accommodated, thereby providing more jobs and income, and further quality of life improvements.

Impacts from Fire and Fuels Management

Fuels treatment levels under Alternative 2 would be greater than Alternatives 1, 3, 5, and the No Action Alternative (Table 4-22). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007), fuels treatment under this alternative would likely provide the same or less risk to life and property than under those alternatives. Consequently, improved quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks. However, risk and associated cost under this alternative could be more than Alternative 4 since fewer acres are treated and, thus, perceived quality of life would be less.

Impacts from Minerals

Current levels of mineral material removal would be accommodated under Alternative 2 (Table 4-14). Employment and income generated from these activities would continue to support quality of life. In addition, the exclusion of areas for minerals exploration and development, such as withdrawal in ACECs, would be less than the other alternatives (Table 4-21). Thus, individuals and groups whose quality of life depends on current material removed from the Decision Area would not change. Others could perceive an increase in quality of life associated with the increased potential for development in fewer withdrawn areas.

Impacts from Travel and Transportation

Based on public comment, access across BLM land is important to continue recreational, cultural, spiritual, subsistence, and resource uses of public and private lands that some livelihoods depend upon. Closure of motorized access in areas with no “legal” public access under Alternative 2 would result in a decrease in quality of life for individuals and groups interested in access. However, closure would not apply to roads required for commodity uses. For other non-commodity uses, closure would be temporary until legal access is gained and areas

are analyzed for appropriate types of use. As a consequence, decreases in quality of life would be temporary for some users. However, for others, access across the Decision Area would not be reinstated, which would imply a permanent decrease in their perceived quality of life.

Other Impacts

Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA's weed abatement program on public lands would continue under Alternative 2. Impacts would thus be same as those described under Impacts Common to All Alternatives.

Impacts to Counties

Payments to counties and consequent effects under this alternative are discussed above under Impacts Common to all Alternatives; these payments depend almost entirely on PILT payments and thus do not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Under Alternative 2, less acreage would be designated as ACECs than under the other alternatives (Table 4-22). In addition, Joseph Creek would not be recommended to Congress for designation into the NWSRS, which would provide less designation than would occur under the other action alternatives. Furthermore, identified lands with wilderness characteristics would not be protected (Table 4-21). Therefore, individuals and groups interested in resource protection and traditional uses would associate this alternative with a decrease in their current quality of life and see less benefit than under the other action alternatives. In contrast, higher levels of resource outputs associated with the absence of these designations under this alternative would be perceived as an increase in the quality of life by those interested in resource use.

Alternative 3

Impacts from Recreation

Despite the effects of closing areas with no "legal" public access to motorized use, future travel and transportation analysis of appropriate uses would accommodate recreation at levels greater than the estimated levels of visitation under the other alternatives (Table 4-22). Use should increase with promotion of the WSR areas and more improvements to day-use and overnight

facilities relative to the other alternatives. Consequently, quality of life and quality of recreation experiences by individuals and groups interested in recreation would be greater than the other alternatives. Regardless of an overall increase in recreation visits, the restrictions on recreation when inconsistent with commodity production under Alternative 2 would not occur under this alternative. As a result, these actions could decrease commodity production, which would imply decreases in perceived quality of life for communities interested in resource use.

Impacts from Livestock Grazing

Alternative 3 would have a lower estimated level of authorized use than the No Action Alternative, Alternative 1, and Alternative 2 as a result of actions that reduce conflict for recreation uses (Table 4-22). For example, grazing would be removed or reduced in areas of high recreational value if there are persistent conflicts with recreational users under this alternative. These actions could increase cost and decrease grazing output supported by BLM for individual operators. Consequently, the perceived quality of life of communities interested in ranching and resource use would decrease. However, these measures would result in decreased conflict with other recreational uses and resource values. Therefore communities interested in resource protection and recreation would experience an increase in their perceived quality of life relative to under the No Action Alternative, Alternative 1, and Alternative 2.

Less grazing would be authorized under this alternative than is currently used (Table 4-22). While the six county impact area exhibits a low level of dependency on BLM forage,¹³ public lands provide a low cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers depend on public lands for a larger portion of their forage than other producers. Thus, while decreases in grazing on the Decision Area would not appear to impact the overall supply of forage to Planning Area producers, the quality of life of individual operators in smaller communities could be impacted to a greater degree.

Impacts from Forest and Woodland Products

Alternative 3 would provide the same amount of forest products as Alternative 1 (Table 4-22) and treatment would emphasize restoration in popular recreation areas and mitigating visual impacts. While the fewer jobs and less income supported under this alternative than under Alternatives 2 and 4 would imply a decrease in quality of life for communities interested in resource uses, the quality of recreation experience, and consequently perceived quality of life, would increase for communities interested in recreation.

¹³ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (see Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3).

Impacts from Fire and Fuels Management

Fuels treatment levels under Alternative 3 would be less than the other action alternatives, but greater than the No Action Alternative (Table 4-21). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007), fuels treatment under this alternative would likely provide the same or more risk to life and property than the other alternatives, but less overall risk than under the No Action Alternative. Relative to the other action alternatives, decreases in quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks. However, there would likely be an improvement in quality of life compared to the No Action Alternative.

Impacts from Mineral Resources

Current levels of mineral material removal would be accommodated under Alternative 3 (Table 4-14). Employment and income generated from these activities would continue to support quality of life. However, the exclusion of areas for minerals exploration and development, such as withdrawal in ACECs, would be higher than the No Action Alternative and Alternative 2 (Table 4-21). Thus, individuals and groups whose quality of life depends on current material removed from the Decision Area would not change. However, others could perceive a decrease in quality of life associated with decreased potential for development in withdrawn areas compared to the No Action Alternative and Alternative 2.

Impacts from Travel and Transportation

Based on public comments, access across public lands would be important to continue recreational, cultural, spiritual, subsistence and resource uses of public and private lands that some livelihoods depend upon. Closure of motorized access in areas with no “legal” public access under Alternative 3 would result in a decrease in perceived quality of life for individuals and groups interested in access. However, improved maintenance standards in high use recreation areas in order to allow for increased recreation use would occur under Alternative 3. As a consequence, decreases in quality of life would be temporary for some users interested in access and recreation, but could be improved in the long term for these communities. However, for others, access across the Decision Area would not be reinstated, which would imply a permanent decrease in their perceived quality of life.

Other Impacts

Impacts from Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA’s weed abatement program in the Decision Area would continue under this alternative. Therefore, the effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on public lands

coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Payments to counties and consequent effects under this alternative are discussed above under Impacts Common to all Alternatives. These payments depend almost entirely on PILT payments and do not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed above under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Under Alternative 3, less acreage would be designated as ACECs than under Alternatives 1, 4, or 5 (Table 4-22) and the same amount of WSR nomination and protected acres of lands with wilderness characteristics would occur as Alternative 1 (Table 4-21). Therefore, individuals and groups interested in resource protection and traditional uses would associate Alternative 3 with a decrease in their current quality of life relative to Alternatives 1, 4, or 5. In contrast, as under Alternative 2 and the No Action Alternative, higher levels of resource outputs associated with fewer of these designations would be perceived as providing higher quality of life by those interested in resource use.

Alternative 4

Impacts same as under Alternative 1

- Impacts from Minerals
-

Impacts from Recreation

The effects of closing areas with no “legal” public access to motorized use would affect both motorized and non-motorized recreation use given limits on access for all user groups. Regardless, baseline use within the Planning Area should increase, with the expected annual rates of recreation increases outlined in the assumptions above (Table 4-22). Use should increase with promotion of WSRs and more improvements to day-use and overnight facilities relative to the other alternatives. Consequently, quality of recreation experience and perceived quality of life of communities interested in recreation would be the same as under Alternative 5, but less than the other alternatives. In addition, restrictions on recreation under this alternative when inconsistent with landscape health would imply an increase in perceived quality of life for communities interested in resource protection.

Impacts from Livestock Grazing

Alternative 4 would have a lower estimated level of authorized use than the No Action Alternative, and Alternatives 1, 2, and 3 (Table 4-22). In addition when rangeland health standards are not met, grazing would not be authorized in that pasture. These actions would increase cost and decrease grazing output supported by the BLM. Consequently, the perceived quality of life of communities interested in ranching and resource use would decrease relative to the No Action Alternative and Alternatives 1, 2, and 3. However, these measures could result in decreased conflict with other resource values not addressed under the other alternatives. Thus, communities interested in resource protection and recreation could experience an increase in their perceived quality of life relative to the other alternatives as a result of these grazing actions.

Less grazing would be authorized under Alternative 4 than used currently (Table 4-22). While the six county impact area exhibits a low level of dependency on BLM forage,¹⁴ public lands provide a low-cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers depend on public lands for a larger portion of their forage than other producers. Thus, while decreases in grazing on public lands would not appear to impact the overall supply of forage to Planning Area producers, the quality of life of individual operators in smaller communities could be impacted to a greater degree.

Impacts from Forest and Woodland Products

Alternative 4 would provide for harvest of 500 to 1,250 MBF (Table 4-22). This alternative offers a slightly larger average and range than Alternatives 1 or 3 and, thus, could result in larger impacts. However, it must be noted that only 31 percent of ASQ has been harvested historically. If PSQ was less than current average harvest, employment, and income would be lost and area quality of life would decrease for those interested in resource use. However, with cooperation of favorable timber market conditions, more harvest than experienced currently could be accommodated providing more jobs and income and further improving quality of life.

Impacts from Fire and Fuels Management

Fuels treatment levels under Alternative 4 would be greater than the other action alternatives and the No Action Alternative (Table 4-22). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas

¹⁴ The estimated level of authorized use under all the alternatives would provide two percent of total forage needed to feed 2007 levels of livestock in the Planning Area (see Table 4-14 and livestock production discussion in the Social and Economic section of Chapter 3).

where they have not (BLM 2007), fuels treatment under this alternative would likely provide the least risk to life and property among the alternatives. Consequently, improved quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks.

Impacts from Travel and Transportation

Based on public comments, access across the Decision Area would be important to continue recreational, cultural, spiritual, subsistence, and resource uses of public and private lands that some livelihoods depend upon. Closure of motorized access in areas with no “legal” public access under this alternative would result in a decrease in quality of life for individuals and groups interested in access. These closures would be permanent, while they are temporary under Alternatives 1, 2, and 3. As a consequence, decreases in perceived quality of life would result for many motorized and non-motorized users. For example, both motorized and non-motorized recreationists could no longer have motorized access to important trailheads or recreation areas. Commercial and subsistence uses that rely on access across the Decision Area to private and public lands could also be affected. As a result of these actions, less access would be provided than the other alternatives, resulting in permanent decreases in perceived quality of life for many user groups.

Other Impacts

Impacts from Externally Funded Ecosystem Restoration

Restoration projects and the TCWMA’s weed abatement program in the Decision Area would continue under Alternative 4. Therefore, the effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Payments to counties and consequent effects under this alternative are discussed above under Impacts Common to all Alternatives. These payments depend almost entirely on PILT payments and do not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed above under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Impacts would be the same as described under Alternative 1.

Alternative 5Impacts same as under Alternative 1

- Impacts from Minerals

Impacts same as under Alternative 4

- Impacts from Recreation
- Impacts from Travel and Transportation

Impacts from Livestock Grazing

Under Alternative 5, less grazing would be authorized than under the other alternatives and currently authorized (Table 4-22). While the six county impact area exhibits a low level of dependency on BLM forage, public lands provide a low-cost and important complement to some livestock producers' grazing, forage, and hay production. In some cases, individual counties and livestock producers within the Planning Area likely depend on BLM for a larger portion of their forage. Thus, while decreases in grazing on the Decision Area would not appear to impact the overall supply of forage to Planning Area producers, smaller communities and individual operators within the Planning Area could be impacted to a greater degree. Consequently, communities interested in ranching and resource use would experience a decrease in their quality of life. However, these decreases could result in increased resource values and conflict resolution with other uses in the Decision Area. As a result, communities interested in resource protection and recreation could experience an increase in their perceived quality of life relative to the other alternatives.

Impacts from Forest and Woodland Products

While this alternative would treat 250 acres per year, no commercial, sanitation, or salvage harvesting would be done, thus no PSQ would be available (Table 4-22). Consequently employment and income supported currently would be lost and area quality of life would decrease.

While communities interested in resource use would experience a decrease in their quality of life as a result of the lack of PSQ, the absence of PSQ would be perceived as an improvement in other resource values by some individuals and groups interested in resource protection. However, other individuals and groups interested in resource protection might associate the absence of PSQ with increased fuels load that put other resource values at risk.

Impacts from Fire and Fuels Management

Fuel treatment levels under Alternative 5 would be greater than Alternative 3 and the No Action Alternative, but less than the other action alternatives (Table 4-22). Since fire suppression costs and risk to life and property should be less when wildfires occur where hazardous fuels have been treated compared to areas where they have not (BLM 2007), fuels treatment under Alternative 5 would likely provide the less risk to life and property than the other alternatives, apart from Alternative 3 and the No Action Alternative. Consequently, decreased quality of life would be perceived by area residents and others skeptical of the ability to prevent unplanned wildfire with current fuel load risks.

Other Impacts*Impacts from Externally Funded Ecosystem Restoration*

Restoration projects and the TCWMA's weed abatement program in the Decision Area would continue under Alternative 5. Therefore, the effects are the same as those described under Impacts Common to All Alternatives. However, with changes in disturbance on BLM coupled with changes in the availability of external funds, contributions from these sources could change under this alternative.

Impacts to Counties

Payments to counties and consequent effects under this alternative are discussed above under Impacts Common to all Alternatives. While the absence of timber PSQ and grazing under Alternative 5 provide less payments than the other alternatives, the total amount is only slightly less than the other alternatives and, thus, does not vary enough to provide changes in social effects amongst the alternatives (Table 4-22).

Impacts from BLM Expenditures and Employment

Social effects associated with BLM expenditures and employment are discussed above under Impacts Common to all Alternatives.

Role of Amenities, Migration and Non-market Values

Impacts would be the same as described under Alternative 1.

Alternative 5aImpacts from Livestock Grazing

No grazing would be authorized under Alternative 5 (Table 4-22). While the six county impact area exhibits a low level of dependency on BLM forage, public lands provides a low cost and

important complement to some livestock producers' grazing, forage, and hay production. In addition, individual counties and livestock producers within the Planning Area likely depend on public lands for a larger portion of their forage. Thus, while the removal of grazing from the Decision Area would not appear to impact the overall supply of forage to producers in the entire Planning Area, smaller communities and individual operators within the Planning Area depend on this forage to a greater degree. Consequently, communities interested in ranching and resource use would experience a decrease in their quality of life as a result of the lack of grazing under this alternative. However, the absence of grazing could result in increased resource values and conflict resolution. As a result, communities interested in resource protection and recreation could experience an increase in their perceived quality of life relative to the other alternatives.

d. Cumulative Impacts

The regional economy can be affected by a variety of factors including population growth, changes in interest rates, location of new industries, recession, growth of new sectors, tax policy, state economic policy, and more. When compared to these variables, the management actions under this RMP have relatively small effect on the regional economy. Because the changes in economic activity presented above would be largely unnoticeable regionally, there should be no cumulative economic effects regionally. However, for smaller areas within counties and communities in the impact area, cumulative economic effects may occur.

All Alternatives

Recreation

According to the Wallowa Whitman National Forest schedule of proposed actions, a comprehensive plan for motorized recreation on the Wallowa-Whitman National Forest is in progress and will include designated routes for all motorized vehicles (USFS 2009a). The Umatilla National Forest has finished travel management planning and is designate routes and areas open to OHV use under EAs, such as the West End OHV EA (USFS 2009b). The extent and nature of these actions will determine the social and economic consequences for the area. Once this RMP is approved, the BLM will develop a TMP that will identify a network of routes that will support some current uses now taking place in the area or expected to take place in the future, which will include uses on adjacent national forests.

Grazing

Communities interested in ranching expressed concern that the traditional and historical role grazing has played is in decline. Children in traditional ranching families often do not maintain the family tradition given new challenges presented by changing market conditions, such as the increased cost of operation. While the level and approach to grazing differs amongst the alternatives, 77 percent of AUMs were used in 2008 out of the permitted maximum number of AUMs that could be offered under ideal forage conditions. This was down from 84 percent in 2000 and 87 percent in 2006. While these decreasing trends in AUM utilization are largely

outside the spectrum of BLM management, with the cooperation of favorable market conditions and willing permittees, current levels of grazing would be supported under the No Action Alternative, Alternative 1, and Alternative 2.

Forest Products

The potential for biomass utilization within the Planning Area is favorable (DOE 2003). Additionally, interest by the community in the use of biomass has been increasing. A number of people are looking into biomass and alternative energy development at the county level, promoted by state and federal officials. Apparently, there is an opportunity to use biomass in the middle school (JKA 2006). As stated under Impacts Common to All Alternatives, current levels fuel treatment would be less than under all the alternatives, which could provide material that might be utilized within new industries. Jobs and income associated with new industries would further support economic and social resiliency. The further development and use of alternative energy sources would also support area resiliency as a broader range of energy sources become available.

Fire and Fuels Management

Potential wildfire-related costs (such as property loss, lost revenues, and suppression costs) cannot be projected; however, treatment levels under the alternatives discussed above could affect risk and fire-related costs on private, state and other federal lands. The degree to which risk would be mitigated on these lands from treatment on BLM cannot be projected, but could be the greatest under Alternative 5 and the least under the No Action Alternative, respectively containing the most and least acreage treated amongst the alternatives (Table 4-15).

Mineral Resources

Current levels of leasable, locatable, and salable mineral production would continue to be provided by BLM in the Decision Area (Table 4-14 above). Consequently any cumulative effects to mineral resource uses would be the same amongst the alternatives.

Externally Funded Ecosystem Restoration

Current levels of management performed on public lands carried out with funds not provided by the BLM would continue under all the alternatives. Consequently any associated cumulative effects would be the same amongst the alternatives.

Impacts to Counties

Under all the alternatives, the large dependence of county payments on PILT attributable to BLM entitlement acreage means that county payments do not vary significantly (Table 4-22) and that associated employment and income impacts do not vary substantially (approximately 4 jobs and from 141,000 to \$154,000 in labor income). In addition, as discussed in Chapter 3, county

payments in Planning Area counties make up less than 5 percent of local government revenues (Revenue Sharing section of Chapter 3). Thus, county programs and infrastructure supported by these payments would not differ amongst the alternatives. Consequently, cumulative economic effects on counties would likely remain the same under the alternatives.

BLM Expenditures and Employment

Under all the alternatives, it is assumed that the level of expenditures and employment at the Baker FO will not vary by alternative and, thus, employment and income supported does not vary amongst the alternatives. Consequently, any cumulative economic effects on those dependent on these contributions would remain the same under the alternatives.

Role of Amenities, Migration and Non-market Values

Managing lands with wilderness characteristics, increasing total acres within ACEC boundaries, identifying the review section of Joseph Creek as suitable for inclusion into the NWSRS, and increasing areas within the more restrictive VRM classes (see Table 4-22) would further maintain, and perhaps enhance, non-market values associated with natural amenities protected on these lands. Natural amenities and quality of life have been increasingly recognized as important factors in many rural communities in the West (Rudzitis and Johnson 2000). Thus, managing ACECs, WSRs, and identified lands with wilderness characteristics similarly contribute to quality of life for communities interested in resource protection. The effects on quality of life from special area designations and management of these attributes on private, state, and other federal land cannot be projected; however, it would likely be the greatest under Alternative 3 and the least under the No Action Alternative, which, respectively, contain the most and least acreage designated amongst the alternatives.

Wind Energy Development and ROWs

Exclusion areas and limits on leasing in the Decision Area could increase development and ROWs on private, state, or other federal lands. However, decisions to invest in energy development and infrastructure on public lands are dependent on factors determined by both regional and world markets. Speculation beyond planned development is unrealistic since decisions to invest are dependent on these factors outside the scope of BLM management. In addition, costs associated with development on public land (i.e. site specific planning) could hamper development. In the future, with changes in energy markets, technology and/or development saturation on available private land, development in the Decision Area may become more likely, and the exclusion of areas on public land may limit development if substitute locations are not available. However, it can be reasonably assumed that the availability of ROWs and land for energy development in the Decision Area would accommodate development interests within the next 20 years. Consequently, exclusion areas would not limit development in the area, nor would it increase development on other private, state, or federal lands.

Cumulative Impacts by Industry Sector

Employment projections by industry are not available for Asotin County, but the Oregon Employment Department has projections of employment for several industries where contributions from amongst alternative sources are largest (Table 4-17 and Table 4-18). Between 2006 and 2016, Non-farm Natural Resource and Mining sectors are projected to increase by 10 percent (from 100 to 110 jobs) in Morrow and Umatilla counties and are projected to decrease by 4 percent (from 230 to 220 jobs) in Baker, Union, and Wallowa counties (Oregon Employment Department 2007). These trends suggest the relatively small contribution from Decision Area related activities to the IMPLAN Agricultural sector overshadow the role these contributions make to the non-farm natural resources and mining related sector. While much of the employment attributable the alternatives in the IMPLAN Agriculture sector are farm related, many are also non-farm (Table 4-17 and Table 4-18). Thus, a large portion of the non-farm related employment in these counties could depend upon contributions from public lands. With decreases projected for Baker, Union, and Wallowa counties, the contributions from public lands could become more important.

The importance of cumulative contributions from BLM management can be ascertained from projected changes to the wholesale and retail trade sector. Projections for this industry aggregation suggests that in Morrow and Umatilla counties employment will increase by 12 percent (from 4,160 to 4,670) over this period. In Baker, Union, and Wallowa counties employment will increase by 11 percent (from 2,750 to 3,050) in this industry aggregation (Oregon Employment Department 2007). These trends suggest that the relatively small contribution from Decision Area related activities to service related sectors (Table 4-17 and Table 4-18) would likely continue.

Cumulative Impacts to Population

Population increases are also anticipated over this period within the Planning Area. According to projections from Portland State University and the University of Washington, the population in all six Planning Area counties will increase by 17 percent between 2005 and 2020. Morrow County will increase the most over this period (42 percent) while Baker County will increase the least (4 percent; Portland State University 2004; State of Washington 2007). These population increases suggest use of public lands will continue to increase, challenges with the urban interface could increase, and competing uses will remain a challenge.

In conclusion, projected employment changes in the area suggest economic contributions from BLM management would be small. However, the role BLM plays may increase along with the population since the land managed by BLM sustains area well-being and would continue to do so under all alternatives. This occurs largely through the provision of natural amenities and recreational opportunities that attract tourists, businesses, and maintain quality of life. None of the alternatives would alter the trends outlined above, but they would sustain aspects of overall quality of life, such as employment, recreation, education, and cultural development. While the

provision of these resources varies by alternative, these opportunities would be available for a variety of demographic groups, area residents, tourists, and others who value the area.

2. PUBLIC HEALTH AND SAFETY

Public health and safety, as discussed in this document, will focus on BLM recreational and administrative facilities, the BLM transportation system, abandoned mine sites, and hazardous materials and wastes. These potential hazards are analyzed below.

Department of Defense withdrawn sites such as the Navy Boardman Bombing Range and Umatilla Army Depot are closed to the public. The Department of Defense is responsible for safety issues, hazardous material, waste management, the discovery and disposal of unexploded munitions, and other issues within the areas. Activities at these sites will not be discussed further as they are outside the scope of BLM management decisions.

a. Indicators, Methods, and Assumptions

Public Health and Safety Indicators

This analysis is based on the perceived risk threatening the safety of the public due to actions proposed by this Draft RMP.

Public Health and Safety Methods and Assumptions

General assumptions:

- Regular safety inspections of BLM facilities by BLM and the Occupational Safety and Health Administration (OSHA) will continue regardless of alternative.
- Implementation and monitoring of actions outlined in the TMP, once completed, and the Travel and Transportation section of the Final RMP will be done as funding allows.
- Safety standards and BMPs at BLM facilities will be followed under all alternatives.
- As described elsewhere in this document, a TMP will be prepared within 3 years of the ROD being signed for the Baker FO RMP. Until that time the Goals, Objectives, and management actions selected and approved under the Travel and Transportation section and other related sections of the RMP will be followed.
- To reduce the threat of physical and environmental impacts from abandoned mine sites, the Baker FO will remediate sites based on risk assessments.
- The BLM's Hazard Management and Resource Restoration Program (HMRRP) will be followed under all alternatives.

Abandoned Mine Sites:

- Abandoned mine sites in the Decision Area are identified and assessed as to risk level.
- The priority for cleaning up those sites determined to pose a risk to the public are:

- a) Where a death or injury has occurred and the site has not yet been addressed.
- b) Where the site is situated on, or in immediate proximity of locations with high visitor use.
- Abandoned mine sites adversely impacting watersheds or water quality are also a high priority. The BLM will continue to coordinate and cooperate with the ODEQ and Oregon Department of Geology and Minerals in reclaiming these sites on public land.

Hazardous Materials and Waste:

- All new hazardous materials and waste sites are identified and characterized.
- Resource development activities identify any possible generation of hazardous waste.
- No substantial new hazardous materials uses and (or) waste generation occurs within the Decision Area.

Magnitude of Impacts to Public Health and Safety

Short-term (less than 5 years) direct and indirect impacts to public health and safety from any of the five alternatives are not expected to be significant or severe in nature. Long-term and cumulative impacts of certain actions on public lands and from other sources throughout the Decision Area could contribute to a slight increase in risk to the public, but these are not expected to be significant for the foreseeable future. This assumption is based on no major unexpected events or changes occurring over the next 15 to 20 years, regardless of the alternative chosen.

a. Impacts to Public Health and Safety

Impacts Common to all Alternatives

The five alternatives described in Chapter 2 are not expected to create an increase in abandoned mine sites or increase risks at existing sites beyond the normal fluctuation in mining activity by the mining industry. Under all alternatives, the BLM would remediate sites posing a substantial risk to human health and the environment. Risk reduction would also occur through educating the public about the hazards associated with abandoned mines by using publications, signage, websites, and other educational materials.

Under all the alternatives, none of the management actions would affect abandoned mine sites in the Decision Area to any degree that might put the public at greater risk.

The BLM's HMRRP requires a response to all hazardous material releases on public lands. Emergency cleanup actions would continue to be implemented on sites posing a substantial threat to the public and (or) the environment, thereby keeping adverse impacts to a minimum

Implementing hazardous materials management under all the alternatives would address human health and environmental risks from hazardous materials. Any authorized use of hazardous

materials adheres to federal and state requirements to reduce or eliminate impacts. Hazardous materials in the Decision Area would continue to be managed to reduce risks to visitors and employees, to restore contaminated lands, and to carry out emergency response activities, as per appropriate laws, policies, and regulations. The potential for substantial direct or indirect impacts related to risks from hazardous materials during remediation could exist, depending on the situation and circumstances at the time.

No Action Alternative

All impacts to public safety from the No Action Alternative are discussed above under Impacts Common to All Alternatives.

Alternative 1

All impacts to public safety from Alternative 1 are discussed above under Impacts Common to All Alternatives.

Alternative 2

All impacts to public safety from Alternative 2 are discussed above under Impacts Common to All Alternatives, with the exceptions noted below.

Alternative 2 would lead to an increase in commercial use of public lands in the Planning Area. This would come with the inherent risk associated with some increase in the amount of hazardous materials that would be generated, used, transported, and stored. The potential incremental increase would be hard to estimate, but would not be considered a significant. This assumes a reasonable rate of growth in business expansion. There would always be the possibility that this risk could increase, depending on the type of commercial use and what the associated materials might be.

Alternative 3

All impacts to public safety from Alternative 3 are discussed above under Impacts Common to All Alternatives, with the exceptions noted below.

Impacts from Facilities

Alternative 3 would lead to an increased use of BLM recreational facilities, such as campgrounds and boat launches. In the short term, this could lead to overuse of some sites until funding would allow for expansion of existing facilities and or the addition of new sites. This overuse could contribute to a small increase in the number of accidents and incidents of various kinds involving the public.

Impacts from Recreation

With an increase in recreational use, a proportionate increase in the amount of hazardous materials generated, transported, used, and possibly stored would be expected on public lands. This increase would come with additional inherent risks, but would not be expected to pose a significant increased risk to the public.

Impacts from Travel and Transportation

Alternative 3 would lead to an increased in traffic on the Decision Area's transportation system due to the growth in recreational use. This, in turn, would increase the risk of traffic accidents and other incidents occurring on public lands, especially at or near high public use areas. An increase in recreational use in remote areas could also result in a rise in incidents in these locations. Such an increase would not be considered a significant impact to public safety, and improvements to the transportation system would be probable over time to help reduce this increased risk.

Alternative 4

All impacts to public safety from Alternative 4 are discussed above under Impacts Common to All Alternatives. Compared to Alternatives 2 and 3, there could be a slight decrease in risks to public health and safety due to less use from commercial interests and a reduction in some types of public recreation.

Alternative 5

Impacts would be the same as described under Alternative 4.

CHAPTER 5. CONSULTATION AND COORDINATION

A. INTRODUCTION

Though assigned the responsibility of managing approximately 428,425 acres of Bureau of Land Management - (BLM) administered public lands within the Decision Area, the Baker Field Office (FO) shares an interest in the management of these lands with other federal, state, and local governmental agencies, Native American Tribes, local residents, visitors, and other individuals and organizations.

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) mandates public, governmental, and tribal involvement. This mandate is reflected in the BLM Planning Manual and Handbook. Additional policy and law as described below mandate tribal involvement.

More important than any law or regulation, it is just good sense to involve the public, other governmental agencies, and tribes in the planning process. Each of these entities has unique interests and knowledge. Sharing interests and knowledge in a collaborative setting contributes to the development of a plan that effectively addresses the major planning issues and is more likely to meet local, regional, and national needs than a process without meaningful collaboration.

B. COOPERATING AGENCIES

The BLM notified and asked local, state, and federal agencies and tribal governments to be formal cooperators with the BLM during the development of the Baker FO Resource Management Plan (RMP). These agencies and tribal governments are listed in Table 5-1. Representatives from these agencies and tribes bring vast knowledge and a broad range of interests to the table and enhance the ability of the BLM to identify important issues and to address them with an appropriate range of alternatives. Although no agency or tribal government decided to be formal cooperators, some have shown interest and been informally involved in the process.

Army Corps of Engineers	
Asotin County Commission	Shoshone-Paiute Tribes of the Fort Hall Reservation
Baker County Commission	Umatilla County
Bonneville Power Administration	Umatilla Depot (Army)
	Umatilla National Forest
Burns Paiute Tribe	Union County Commissioners
Confederated Tribes of the Colville Reservation	
Confederated Tribes of the Warm Springs Reservation of Oregon	US Environmental Protection Agency (EPA), Region 10

Table 5-1. Tribes, Agencies and Governments Approached for Cooperator Status	
Confederated Tribes of the Umatilla Indian Reservation	U.S. Department of Agriculture (USDA) Malheur National Forest
Confederated Tribes of the Warm Springs Reservation of Oregon	USDA Natural Resource Conservation Service
U.S. Department of Energy (DOE) Boardman Bombing Range	USDA Natural Resource Conservation Service (NRCS)
US Department of Energy, Western Regional Office	
Fort McDermitt Paiute and Shoshone Tribes	USDA Umatilla National Forest
Malheur County Commission	USDA Wallowa-Whitman National Forest
	USDA R6 Lands And Minerals
	US Department of Interior (USDI) Bureau of Indian Affairs (BIA) Northwest Regional Office
Morrow County Commission	USDI BIA Warm Springs Indian Agency
National Marine Fisheries Service (NMFS)	USDI BLM Prineville District
Nez Perce Tribe	USDI BLM Burns District Office
Northwest Power and Conservation Council	USDI Fish and Wildlife Service (USFS)
Oregon Department of Agriculture	USDI Bureau of Reclamation
Oregon Office of Energy	Wallowa County Commission
Oregon Department of Environmental Quality (ODEQ)	Wallowa-Whitman National Forest
Oregon Department of Fish and Wildlife (ODFW)	Washington Conservation Commission
Oregon Department of Forestry	Washington Department of Agriculture
Oregon Department of Geology and Mineral Industries	Washington Department of Archaeology and Historic Preservation
Oregon Department of Land Conservation and Development	Washington Department of Ecology
Oregon Department of Transportation (ODOT)	Washington Department of Fish and Wildlife
Oregon State Parks and Recreation Department (OPRD)	Washington Department of Natural Resources
Oregon Department of State Lands	Washington Department of Transportation
Oregon Heritage Commission	Washington Geographic Information Council
Oregon Historic Trails Advisory Council	Washington Invasive Species Council
Oregon Public Utilities Commission	Washington Land Use Study Commission
Oregon Water Resources Department	Washington Parks and Recreation Commission
Shoshone-Paiute Tribes of the Duck Valley Reservation	Washington Utilities and Transportation Commission

The intent was for representatives from the various agencies and tribal governments to meet periodically to review and develop content initiated by BLM staff. These representatives helped play a role in refining issues, formulating alternatives and management actions, as well as providing prepublication review of key documents. These representatives were also helpful in keeping the BLM informed of new concerns for their organizations or community that might be relevant to the RMP process. When needed and to the extent that agencies and tribal governments staff time was available, they met to work on specific problems during the planning process.

1. TRIBAL INVOLVEMENT

The BLM is guided by national policy and law and is committed to continuing consultation and cooperative management whenever possible. The BLM recognizes its responsibility to provide to federally recognized tribal governments and individuals sufficient opportunity to contribute to land use decisions and that those concerns or issues are given proper consideration related to cultural, religious, and natural resource values. This trust relationship is acknowledged by the U.S. Constitution and is based upon negotiated treaties or other agreements that recognize the sovereignty of American Indian Nations to govern themselves as distinct political communities. Tribes with off-reservation treaty rights and traditional interests within the Planning Area include the Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Confederated Tribes of the Warm Springs Reservation. The Shoshone-Bannock Tribes of the Fort Hall Reservation also have treaty rights for hunting on unoccupied federal lands. The Burns Paiute Tribe, Confederated Tribes of the Colville Reservation, Shoshone-Bannock Tribes, and Shoshone-Paiute Tribes have traditional interests in the Planning Area that need to be considered during land use and project planning under various federal laws, regulations, and Executive Orders.

Memoranda of understanding exist for coordination and consultation on RMPs and issues between the BLM and the Confederated Tribes of the Umatilla Indian Reservation, Burns Paiute Tribe, and Confederated Tribes of the Warm Springs Reservation. These memoranda of understanding provide a framework for government-to-government consultation and collaboration on RMPs, proposals, actions, and policies and to make a statement of mutual benefits and interests. They also describe the rights and responsibilities of cooperative management and consultation. Accordingly, each tribe has been offered the opportunity to become involved in the planning process for the Baker FO RMP.

2. LOCAL GOVERNMENT

County and municipal governments as representatives of local constituencies have a vested interest in land use planning involving federal lands. Lands managed by the BLM can provide areas for recreation as well as a source of income for residents of the planning area. Public lands can contain roads of importance to local communities and frequently provide the most desirable routes for utilities. Because of their awareness of the needs of local communities, it is important that representative of local government be involved in the planning process. Officials of Baker, Union, Malheur, Wallowa, Morrow, and Umatilla Counties were contacted in the early stages of the planning process.

3. STATE GOVERNMENT

Several state agencies have jurisdiction over certain activities within the Planning Area. As a result, it is important that these agencies be represented in the planning process. The state has had limited participation in the planning process. The ODEQ, OPRD, ODFW, ODOT, Oregon

Department of State Resources, and Washington Department of Natural Resources has had dialogue or provided information at the staff level during this planning process.

4. FEDERAL GOVERNMENT

In addition to the BLM, several federal agencies have resource management responsibilities within the Planning Area. Several agencies have chosen to informally participate in the Baker FO RMP planning process. The USFS and NMFS have oversight responsibilities for compliance with the Endangered Species Act. The EPA is required to review and evaluate all environmental impact statements (EISs). The NRCS plays an important advisory role for private landowners in the Planning Area and has an interest in the management of public lands as well. The USFS manages lands and resources adjacent to BLM managed lands and has shared interests with the BLM in making management of lands and resources complementary whenever possible. The Blue Mountain Forests (Malheur, Umatilla, and Wallowa-Whitman National Forests) each have lands adjacent the Decision Area and are in the process of consolidating and revising their land use plans. The Baker FO has been in contact with the Blue Mountain revision team throughout this process.

5. RESOURCE ADVISORY COUNCIL

The John Day-Snake River Resource Advisory Council (RAC) is an official federal advisory committee, providing advice and recommendations on all aspects of public-land management to the BLM's, Prineville, Vale, and Spokane District Offices and the Umatilla, Wallowa-Whitman, Malheur, and Ochoco National Forests. The RAC conforms to the requirements of the Federal Advisory Committee Act and administrative regulations at 43 Code of Federal Regulations 1784.4-1.

The RAC consists of local residents who represent broad interest categories: commodity interests, non-commodity interests, and community interests. The Secretary of the Interior selects and appoints members to the RAC. Representation includes the following:

- Five members representing commodity interests such as grazing permittees, commercial timber, energy and mining, developed recreation and/or off-highway vehicle groups, and transportation and rights-of-way

- Five members representing conservation interests such as environmental organizations, historic and culture interests, conservation, and dispersed recreation

- Five members representing community interests such as elected officials, Indian Tribes, State resource agencies, academicians involved in natural sciences, and the public-at-large

The RAC meets quarterly at various communities within the RAC's area. The RAC schedules occasional field tours for specific projects or issues on their agenda. All RAC meetings are open

to the public with a portion of each meeting reserved for the public to present or comment on issues for RAC consideration.

The BLM has periodically updated the RAC on the progress of the planning effort. The RAC has also provided assistance in developing alternatives for managing areas of critical environmental concern (ACEC) and travel transportation in the Decision Area.

C. PUBLIC INVOLVEMENT

The most critical element of cooperative management is public involvement. Congress has mandated that the BLM manage public lands for public benefit. At the same time, the public is not a single cohesive entity. Rather the BLM serves a diverse public with multiple and sometimes conflicting interests and positions about key issues. It is important that the diversity of public interests be represented during the planning process. The John Day/Snake RAC provide a representation of diverse public interests. However, it is the intent of the BLM planning team to provide the public with direct access to the planning process. This has been accomplished in the following manner:

1. **Public Scoping:** This initial step, requesting the public provide information about public lands and identify problems associated with public lands in the Planning Area has been completed and involved the following activities:

The BLM contracted the expertise of sociologists and anthropologists (James Kent Associates) to spend time in the planning area visiting with local officials, business owners, travelers, and residents in order to gather information on BLM land management concerns.

The BLM co-hosted, with the USFS several economic profile workshops in the Planning Area, with the intent to explore economic and social trends within the area.

The BLM hosted a series of meetings open to the public throughout Planning Area to gather public input and feedback on concerns and problems with BLM management in the Decision Area.

2. **Publication and public review of the Analysis of the Management Situation (AMS).** After publication, the BLM hosted a series of open houses in eastern, central, and western Oregon to gather public input and feedback on concerns and opportunities described in the AMS.
3. **Public representation in the development of the Baker FO Draft RMP/EIS** occurred through interaction with and guidance provided by the John Day-Snake RAC
4. **Public comment on the Baker FO Draft Baker RMP/EIS** will be carefully considered. Comments may be submitted via U.S. mail, E-mail, or orally at public review meetings or via telephone.

1. Information Sharing

The BLM will continue to use a number of information sharing techniques to give people the opportunity to share new information and to be kept up-to-date on the planning process. The following is a brief summary of some of those techniques.

Baker Resource Area- Resource Management Plan Web Site

The Baker FO RMP/EIS web site will provide information such as plan updates, meeting dates, and plan schedule. The address is <http://www.blm.gov/or/districts/vale/index.htm>

Plan Updates

Periodically, updates of the plan's progress will be prepared, posted to our web site, and mailed to our mailing list. News releases in local newspapers and public meetings will also be utilized.

Open Houses

The BLM will hold open houses in selected communities within the Planning Area after the distribution of this Draft RMP/EIS. At these meetings, BLM staff will be on hand to record comments and to explain details of the plan when requested.

D. LIST OF PREPARERS

Those involved in the preparation of this Draft RMP/EIS are presented in the following two tables. Table 5-2 lists those individuals who were responsible for writing various sections of the Draft RMP/EIS, while Table 5-3 lists those individuals who otherwise contributed to document preparation in various capacities (e.g., management, guidance, and review)

Name	Title	Agency	Assignment	Education	Years of Expertise
Michelle Caviness	Wildlife Biologist	BLM	Species Status Species (bats)	B.S. Wildlife	8 years
Katy Coddington	Archeologist	BLM	Cultural Resources, Paleontological Resources, and Tribal Interests	B.A. Art M.S. Anthropology	3 years
Henry Eichman	Economist	USFS	Social Science and Economic Analysis	B.S. Biology M.S. Agriculture and Resource Economics	4 years
Roger Ferriell	Fire Botanist	BLM	Botany and Special Status Plant Species	B.A. Botany M.S., Resource Conservation (Forestry)	16 years
Gary Guymon	Range Management Specialist	BLM	Livestock Grazing and Vegetative Communities	B.S. Rangeland Science	19 years
Bruce Haase	GIS Specialist	BLM	Geographic Information Systems/Mapping and Data Compilation	B.S. Biology B.S. Geography	11 years
Courtney James	Realty Specialist	BLM	Renewable Energy, Transportation and Access, Land Tenure, Land Use Authorizations, and Withdrawals	B.S. Natural Resources/Environmental Mgt.	12 years
Lilian Jonas	Writer/Editor	Jonas Consulting	Document Writing and Editing	B.S., Biology M.A., Applied Sociology Ph.D., Sociology	19 years
Allison Kuehl	RMP Team Lead	BLM	Guidance, Document Writing and Review	B. S. Wildlife Biology M.S. Rangeland Science	31 years
Craig Martell	Range Management Specialist	BLM	Livestock Grazing and Vegetative Communities	B.S. Agricultural Production/Range Science	24 years
Dorothy Mason	Wildlife Biologist	BLM	ACECs, Hydropower Relicensing, Special Status Species	B.S. Wildlife, Range Resources, Recreation	35 years
Erin McConnell	Natural Resource Specialist - Weeds	BLM	Invasive Plants - Weeds	B.S. Resource Recreation Management – minor Horticulture	17 years

Name	Title	Agency	Assignment	Education	Years of Expertise
Kevin McCoy	Recreation Planner	BLM	Visual Resources, Wilderness Characteristics, Cave and Karst Resources, Facilities, Recreations, Back Country Byways, National Trails, Wild and Scenic Rivers, Transportation, Wilderness, Wilderness Study Areas, and Public Safety	B.S. Biological Science	20 years
Marc Pierce	Forester	BLM	Forestry and Woodland Products and Vegetative Communities-Forest	B.S. Renewable Natural Resources - Forestry	19 years
John Quintela	Fisheries Biologist	BLM	Fisheries and Special Status Fish Species	B.S. Environmental Science M.S. Fishery Resources	8 years
John Rademacher	Natural Resource Supervisor	BLM	Vegetative Communities-Range and Livestock grazing	B.S. Range Ecology and Management M.S. Biology	8 years
Kirk Rentmeister	Zoned Geologist	BLM	Geology and Minerals	B.S. Geology	23 years
Carol Thornton	Hydrologist	USFS	Soil and Water Resources	B.S. Geology M.S. Hydrology/Hydrogeology	12 years
Brian Watts	Ecologist	BLM	Wildland Fire Ecology and Management and Air Quality	B.S. Range Management	21 years
Mike Woods	Natural Resource Specialists - Weeds	BLM	Climate Change, Invasives (other than plants), and Public Safety	B.S. Rangeland Resources	35 years
Melissa Yzquierdo	Wildlife Biologist/Botanist	BLM	Wildlife and Special Status Species	B.S. Wildlife Resources B.S. Range Ecology B.S. Microbiology	10 years

Name	Title	Agency	Assignment	Education	Years of Expertise
Sue Badgley	Range Technician	BLM	Data Retrieval and Assimilation	Dental Assistant –Range Rider	9 years
Mary Bresee	Forester	BLM	Forestry and Woodland Products, and Vegetative Communities and Data Retrieval and Assimilation	B.A. Forest Resources M.S. Landscape Ecology/Plant Physiology	5 years
Richard Chaney	Geologist	BLM	Minerals, Geology and Public Safety	B.S. Geology	4 years

Table 5-3. List of Contributors					
Name	Title	Agency	Assignment	Education	Years of Expertise
Samantha Cisney	Range Technician	BLM	Data Retrieval and Assimilation	B.S. Wildlife B.S. Recreation	5 years
Jackie Dougan	Fish Biologist	BLM	Fish and Special Status Species	B. S. Fisheries	30 years
Ted Davis	Field Manager	BLM	Guidance and Document Review	B.S. Forestry	30 years
Brent Grasty	NRS/GIS	BLM	Geographic Information Systems/Mapping and Data Compilation	B.S. Business Administration M.S. Forestry	19 years
Paul Fyfield	GIS	BLM	Geographic Information Systems/Mapping	B.S. Art M.S. Geography	9 years
Todd Kuck	Assistant Field Manager	BLM	Guidance and Document Review	B.S. Forestry	19 years
Margaret Langlas	SO Planning and Environmental Coordinator	BLM	Guidance and Document Review	B.S. Political Science Law Degree	5 years
Nancy Lull	Field Manager (previous)	BLM	Guidance and Document Review	B.A. Journalism	22 years
Susie Manezes	Lands & Realty	BLM	Renewable Energy, Transportation and Access, Land Tenure, Land Use Authorizations, and Withdrawals	B.A. Education	21 years
Eric Mayes	Planning and Environmental Coordinator	BLM	Guidance and Document Review	B.S. Geography, Oregon State University.	7 years
Paula McBroom	Resource Assistant	BLM	Project Record and Mailings	Business College	22 years
Bryan Mulligan	Natural Resource Technician – Weeds	BLM	Noxious Weeds	B.S. Wildlife Management	4 years
Mary Oman	Archaeologist	BLM	Cultural Resources, Paleontological Resources, and Tribal Interests	B.A. Anthropology B.A. History M.A. Anthropology	22 years
Jon Sadowski	Wildlife Biologist	Contractor	Wildlife and Special Status Species	B.S. Wildlife Management	32years
Denine Schmitz	Fish Biological Technician	BLM	Data Retrieval and Assimilation	B.S. Animal Physiology M.S. Riparian Ecology	2 years
Mark Wilkening	Public Affairs Officer	BLM	News Releases and Publications	B.S. Business	31 years

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